ASSESSMENT FOR THE UPGRADING OF THE INFORMATION TECHNOLOGY SYSTEM OF THE AUTONOMOUS REGION IN MUSLIM MINDANAO REGIONAL GOVERNMENT

The Main Report

Knowledge Systems Development, Incorporated

December 2003

USAID Contract No. 492-C-00-02-00018-00

Table of Contents

List of Tables

1. EXECUTIVE SUMMARY

1. The following IT assessment was focused on the needs of the Regional Government of the Autonomous Region in Muslim Mindanao (ARMM). The objectives of this project are: a) to assess the status of computerization in the ARMM Regional Government (ARG) in Cotabato, b) determine the networking needs within and among the various offices of the ARG, c) assess the hardware, software, e-government, and other IT needs for an evolving ARG and d) propose a comprehensive networked IT plan that would make possible for aid agencies to extend assistance to particular institutions or components rather than fund "all or nothing."
2. The assessment covered several activities necessary to gather data and information on the existing hardware, software and interconnectivity in the ARG offices in Cotabato City as well as the computer skills of the personnel. This was done through several activities namely: *a)* Workshops, *b)* Survey using questionnaires/survey forms, *c)* Key informant interviews, and *d)* On-site physical assessment.
3. In the absence of set standards, discretional standards of measure were formulated by the Consultants based on their extensive knowledge and experience in different IT-related endeavors including, but not limited to, software development, geographic information systems (GIS), application service provisioning (ASP), interconnectivity, etc. In sum, the standards established by the Consultants categorized each aspect of computerization, as follows:
    a. Hardware and software in the ARG offices - *Basic, Intermediate, E-government ready*
    b. Connectivity in the ARG offices - *Stand-alone, LAN with Dial-up Internet, LAN with Broadband Internet*
    c. IT Skills of the ARG personnel - *Computer Literate, Advanced User, Technical User*
4. For the Office of the Regional Governor (ORG) and the ARMM Regional Government in Cotabato City, the Consultants proposes to equip Departments and Offices with the necessary resources, means and ability to attain Stage Level 4 of e-government (i.e., having a transactional website) so it may be able to take advantage of the interactive features of the Internet and thereby facilitate communication between citizens and government agencies and, finally the networked world.

    The United Nations and the American Society of Public Administration have identified what they call the "***Five Stages of e-Government***". These are:

    Stage 1: Emerging web presence (website exists)

Stage 2: Enhanced web presence (changes to website can be made by individual agencies)

Stage 3: Interactive web presence (public can submit information via website)

Stage 4: Transactional web presence (financial transactions are possible via website)

Stage 5: Fully integrated web presence (all transactions and processes are fully automated, connected and available to the public

5. To facilitate planning, the offices in the ARG were grouped, as follows:
   a. Group 1 – The Office of the Regional Governor (ORG), which includes all the 13 offices contained inside the building where the Office of the Regional Governor is located
   b. Group 2 – The Principal ARMM Offices (PAO) comprising 15 line departments
   c. Group 3 – The Other ARMM Offices (OAO), which are the offices created by the ARMM government as well as other government agencies
6. Existing computer hardware and software in the ORG and ARG offices were inventoried and assessed based on: the type of PCs being used, peripherals attached, presence of LAN and WAN, presence of Internet access, management systems, operating system, word processing software, electronic spreadsheet, database software, systems development, tools graphics software, presentation software, web applications development software, computer aided design, geographic information system, utilities, and data communication software.
7. IT Skills of ARG personnel were likewise measured based on the participants' knowledge/expertise in: ***a)*** office automation software (i.e., operating system, word processing, spreadsheet program, presentation software and utilities); ***b)*** specialized software (i.e., database, programming language, specialized software, graphics animation, CAD/GIS); ***c)*** systems administration concepts, systems development concepts, data communications and hardware maintenance.
8. Assessment of the present Information Technology environment in the ARG offices can be summarized follows:
   a. The Office of the Regional Governor (ORG) has a total of 35 computers distributed among 7 of its 13 offices. Almost half of these computers are Pentium II or older and therefore need to be upgraded. Only one (1) office has broadband Internet connection while office automation software is generally limited to MS Windows, word processing and spreadsheet. ORG personnel lack skills in basic automation software, specialized software as well as systems administration, networking and

systems development. ORG employees are generally classified as "Computer Literate."

b. The 15 Principal ARMM Offices (PAO) have 172 notebooks and desktops (with servers) distributed among them. Sixty-five of the desktops are Pentium II or older while 106 are Pentium III or higher. Five offices have access to dial-up internet while one has access to broadband internet. Majority in PAO possess knowledge in basic automation software from operating system to utilities. Database programs are not popular among the PAO offices except for two (DOH and DOST). Four departments have access to different specialized software while six departments use customized software. Among the respondents interviewed no one is proficient in office automation software and very few are proficient in specialized software except two who claim to be adept in using specialized software. PAO is generally considered to belong to the Basic IT level category while two departments are e-government ready. Most staff are considered to be Computer Literate although there are some Advanced and Technical Users.

c. The nine (9) departments of the Other ARMM Offices (OAO) share a total of 45 computers. Nine of these are Pentium II or older and therefore need to be upgraded while 36 are Pentium III or higher. Of the nine (9) that make up the OAO only the National Statistics Office has access to broadband internet, has Local Area Network (LAN) and Wide Area Network (WAN). All except two of the OAO offices have complete basic office automation software. Use of specialized software is likewise limited and only two offices have customized software. Staff proficient in all of the office automation software is available in four out of the nine offices in OAO. The HLURB, NSO, RPMA and TESDA stand out in the OAO group as these offices have people who are proficient in one or two specialized software. Additionally, the OAO have staff that is proficient in data communication, hardware maintenance, systems administration and systems development. One office in the OAO is e-government ready. The OAO personnel are considered Computer Literate, with many Advanced Users, and a few Technical Users.

9. The recommended packages to implement the IT Plan are:

Component 1 – Assessment of computer and networking capacities in the ORG and ARG; establishment of a Local Area Network, Wide Area Network, Internet connectivity for, and among, the 13 offices in the Office of the Regional Governor, the Principal Departments and Other ARMM Offices, and provision of hardware, software and training on the use of the basic software. The items here may be considered the "basic" requirements of each office

Component 2 – Providing software applications for the ORG, the Principal Departments and Other ARMM Offices that would make these ready for e-governance. These include a transactional website, Personnel Management Information System, Payroll System, Accounting System, and Procurement System. Selected staff from the Finance and Personnel departments of each office would be trained in the use of the Personnel, Payroll, Accounting and Procurement systems. Training for Internet applications development is included in this phase.

Component 3 - Providing additional infrastructure to improve the availability of IT resources to ARMM personnel. This component provides what is considered the "ideal" distribution of PCs and software since it improves PC resource availability and effectiveness in each office.

The minimum and ideal cost breakdown for the totality of each of the Components can be summarized in the following Table. The minimum cost module captures the basic IT systems requirement that the ARG must have to be networked and considered e-government ready. The ideal assumes increased PC hardware, software, training and LAN in all the ORG and ARG offices. Additional resources would ensure the availability of computing resources that would allow personnel to perform their functions more efficiently and effectively.

Item	Minimum	Ideal
Hardware	40,049,000	76,473,000
Software	9,820,000	14,844,000
Local Area Network	13,426,400	14,804,000
Internet Connection	1,516,000	1,516,000
Training	10,596,700	15,432,300
Wide Area Network	6,505,000	6,505,000
Hardware for website and systems	11,950,000	11,950,000
Systems	10,700,000	10,700,000
Internet Connection	113,000	113,000
Website	25,205,000	25,205,000
Training	6,223,000	6,223,000
Total	**136,104,100**	**183,765,300**

Note
Components 1 + 2 = Minimum
Component 3 = Ideal

11. Implementation Schedule

Component 1 will take approximately 12 months to complete. Component 2 will take approximately 6 months to complete. Component 3 has an estimated duration of 18 months.

The following table depicts a possible implementation scenario.

Component	Duration	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Component 1	***12 months***																		
Component 2	***6 months***																		
Component 3	***18 months***																		

Components 1 and 2 contain the minimum requirements for the ARMM to be ready for e-governance. Component 3 is the ideal package. It contains the items present in Components 1 and 2 with additional PCs to improve the availability of IT resources to the ARMM personnel. If one chooses to implement Component 3, there is no need to implement Components 1 and 2.

12. Reviewing of the lessons learned from the experience of the province of Bulacan and Butuan City and the insights derived from Digital Philippines clearly point to a *strong political will* as the basic element present in every successful local government endeavor. Although the first steps may be the hardest, sustaining the passion and keeping on track with set goals and objectives could mean the difference between failure and success. As such, "buy in" from Agency leadership is paramount.

It may be worth noting, at this point, that in the ARMM, Agency leaders welcomed the idea of computerization in their work and were supportive of efforts to introduce automation into the processes of government. In other words, the present leaders seem to have the right attitude towards automation and e-governance.

2. INTRODUCTION

The study evaluates the present state of computerization in the Office of the Regional Governor (ORG) and the ARMM Regional Government (ARG), and determines networking needs within and among the ORG and ARG offices. In addition to networking, the assessment considers a range of hardware and software possibilities responsive to the ARMM's current and future needs for Internet, e-government, and management software applications. In this context, the report analyzes costs in terms of "minimal" and "optimal" IT systems requirements -- with both options capable of scaling up easily *(pls. refer to Exhibit "A").* Presentation of the various options makes it possible for aid agencies to extend assistance to particular institutions or components rather than funding "all or nothing."

The aspects of computerization covered in the assessment include the hardware, software, and interconnectivity present in the ARMM offices as well as the computer skills of ARMM employees. In the absence of set standards the Consultants formulated a discretional standard of measure based on their extensive knowledge and experience in different IT-related endeavors including, but not limited to, software development, geographic information systems (GIS), application service provisioning, interconnectivity, etc. Needless to say, these standards of measure were used to evaluate the various levels of IT in the different ARG offices, and the degree of computer skills of the surveyed ARG personnel.

In addition, to the information gathered from the above exercise, the Consultants looked into the experience of local government units in order to address issues that ARMM may face in the future when they start to institute changes towards e-governance. These issues include: a) Resistance to change - Change management; b) Planned / pending relocation of the ARG complex; c) Maintenance of data, facilities, systems, and software; d) Appreciation of management of the benefits that can be derived from computerization; e) IT manpower attrition; f) Technical support

In sum, results of the IT needs assessment, that included factors such as function and size of the different offices, and lessons learned from the experiences of local government units, became the bases of the Consultants' recommendations for interconnectivity for ARMM.

3. SCOPE OF WORK AND METHODOLOGY

The study is basically divided into three main parts, namely:

- Data Collection
- Data Compilation and Analyses
- Recommendations

(Refer to Exhibit B for detailed discussion of the Methodologies used)

3.1. Data Collection

The following data gathering and validation methods were used:

a) Workshop

b) Key informant interviews

c) Survey using questionnaires/survey forms

d) On-site physical assessment

3.2. Data Compilation and Analyses

The range of IT requirements for the ARG were determined based on specific functions of personnel in individual Offices and Departments, current and expected usage of computers, and hardware, software and skills inventories. The information was aggregated, classified and summarized to produce decision tables that were used for analyses. Additionally, all floor plan sketches of the ARG and maps of the ARG compound and its immediate vicinity were converted into digital drawings to facilitate estimation of cabling requirements for networking as well as the recommendation for the Wide Area Network (WAN), respectively.

3.3. Assessment and Identification of IT needs

The level of computerization of each of the ARMM offices were rated based on the standards of measure established by the Consultants, as follows:

3.3.1. Standards For Hardware and Software

a. **Basic –** PC with peripherals, preferably Windows operating system, equipped with word processing software and electronic spreadsheet

b. **Intermediate –** In addition to satisfying the criteria of the Basic level, the PC must be connected to a LAN; has one or more of the specialized software packages (e.g., CAD, GIS, etc) or customized applications (e.g., payroll, accounting systems, etc.), and has an Internet dial-up connection

c. **E-Government Ready –** it satisfies the requirements of the Basic Level, i.e., some PCs are connected to a LAN; one or more specialized software packages (e.g., CAD, GIS, etc.) or customized applications (e.g., payroll, accounting systems, etc.) are utilized; broadband Internet connection is established; and, a website exists.

3.3.2. Standards for Connectivity

a. Stand-alone (no access to Internet or Local Area Network (LAN))

b. LAN with dial-up Internet

c. LAN with broadband Internet

3.3.3. Internet Readiness

The Internet is probably the most important driver of e-governance. It is a medium through which a unit of government can directly interact with its own employees, other government agencies, businesses and the general public. It is available 24-hours a day. The Internet allows access to information and provides a channel for feedback and enables a transaction to be undertaken without red tape that has characterized local bureaucracies.

3.3.3.1. Stages of e-Government

The United Nations and the American Society of Public Administration have identified what they call the "***Five Stages of e-Government***". These are:

Stage 1: Emerging web presence (website exists)

Stage 2: Enhanced web presence (changes to website can be made by individual agencies)

Stage 3: Interactive web presence (public can submit information via website)

Stage 4: Transactional web presence (financial transactions are possible via website)

Stage 5: Fully integrated web presence (all transactions and processes are fully automated, connected and available to the public)

3.3.3.2. Desired Level of e-Government for the ARMM Regional Government

For the ARMM Regional Government in Cotabato City, the Consultants propose to equip the ARG with the necessary resources, means and ability to attain Stage 4 of e-government (i.e., having a transactional website) so it may be able to take advantage of the interactive features of the Internet and thereby facilitate communication between citizens and government agencies, as well as, the networked world. Current e-governance capacity in the ARG, in most cases, has not reached Stage 1 status.

For further discussion on E-Governance, refer to Exhibits C and D.

3.3.3.3. Status of E-Governance in the Philippines

The Philippine government's policy on electronic transactions is embodied in Republic Act 8792 or the e-Commerce Act, which provided the legal framework for enabling the country to engage in e-commerce and mandated that government be online by June 2002.

At present, Digital Philippines Foundation, a non-stock, non-profit organization composed of Information and Communications Technology (ICT) and ICT-related firms has assessed generally assessed e-Government in the Philippines as follows:

- There is no "transactional" government website
- About 14% of the agency websites were unreachable
- About a quarter (24%) of these websites can be considered rudimentary
- A significant number (42%) of the government websites were at stage 2, "enhanced web presence"
- Only 19% of the Philippine government websites studied can be considered "Interactive"
- Only 22% or 375 LGUs (Local Government Units) have web sites.

On the other hand, based on the Network Readiness Index (NRI), which is used to measure a country's preparedness and potential to participate in the networked world, e-Government in the Philippines had been, among others, classified as "Evolving" as characterized by its government's use of the internet mainly for e-mail and only a moderate proportion of government departments have websites and of these websites only a moderate proportion of services were provided online.

3.3.4. Standards for IT Skill

a. Computer Literate – capable of using the basic operating system functions, word processor, electronic spreadsheet or presentation software

b. Advanced User – In addition to the skills of a computer literate user knows how to use utility software such as anti-virus software and

Norton utilities, and database management system. In addition he must know at least one programming language or know how to use any CAD software, GIS software, or any data communication package

c. **Technical User** – must have skills in one or more programming languages; knowledge of one or more data communication packages; proficient in using and managing databases and must be familiar with system administration, systems development or hardware maintenance.

3.4. Coverage

The assessment covers all the ARMM offices located in Cotabato City, collectively referred to as the ARG (ARMM Regional Government). To facilitate the design for networking, the offices were grouped based on their spatial location and functional relationship within the bureaucracy. These are:

Group 1 - Office of the Regional Governor (ORG), which are the offices that are housed inside the ARMM governor's office

Group 2 - Principal ARMM Offices (PAO) comprising all the departments, and two agencies

Group 3 - the other ARMM offices (OAO), which are offices formed by the ARMM local government and other government agencies.

Under the Office of the Regional Governor (ORG) are the following:

1) Regional Governor's Office (RGO)
2) Office of the Executive Secretary (OES)
3) Office of the Chief of Staff (CoS)
4) Deputy Gov for Indigenous Peoples (DGIP)
5) Bureau of Public Information (BPI)
6) Office of the Solicitor General (OSG)
7) Finance, Budget and Management Service (FBMS)
8) Administrative Management Service (AMS)
9) Technical Management Service (TMS)
10) Manila Liaison Office (MLO)
11) Office of the Regional Vice Governor (ORGV)
12) Regional Reconciliation and Unification Commission (RRUC)
13) Internal Security Service (ISS)

The Principal ARMM Offices (PAO) comprise the following departments:

1) Department of Agriculture and Fisheries (DAF)
2) Department of Education (DepEd)
3) Department of Health (DOH)
4) Department of Public Works and Highways (DPWH)

5) Department of Social Welfare and Development (DSWD)
6) Department of Agrarian Reform (DAR)
7) Department of Environment and Natural Resources (DENR)
8) Department of the Interior and Local Government (DILG)
9) Department of Labor and Employment (DOLE)
10) Department of Science and Technology (DOST)
11) Department of Tourism (DOT)
12) Department of Transportation and Communication (DOTC)
13) Department of Trade and Industry (DTI)
14) Commission on Higher Education (CHED)
15) Regional Planning and Development Office (RPDO)

The Other ARMM Offices are:

1) Bureau of Cultural Heritage (BCH)
2) Coordinating and Development Office –Bureau of Youth Affairs (BYA)
3) Cooperative Development Authority (CDA)
4) Housing and Land Use Regulatory Board (HLURB)
5) National Statistics Office (NSO)
6) Office of the Regional Treasurer (ORT)
7) Regional Board of Investments (RBOI)
8) Regional Ports Management Authority (RPMA)
9) Technical Education and Skills Development Authority (TESDA)

4. ASSESSMENT OF THE PRESENT IT-SYSTEM IN ARMM

This section presents the summary of the results of the surveys, interviews and workshops that were conducted. So as not to overwhelm the reader of voluminous data only the gross features of the information gathered are shown in this main report. The bulk of the results of the workshop, surveys and physical assessments and interviews made in the ARG are presented as appendices in Book II.

4.1. The Office of the Regional Governor

The following paragraphs refer to Table 1, page 8 of this document.

1. **Computer Hardware** - The Office of the Regional Governor (ORG) has a total of 35 computers that are distributed in only 7 of its 13 offices. Of the 35 computers 14 computers are classified as Pentium II or older and therefore at the risk of being phased out since these can no long accommodate nor efficiently run the newest versions of the common office automation software. Twenty-one (21), on the other hand, are Pentium III and higher while 1 is a notebook that is Pentium III and higher.

2. **Interconnection** - The only office within the ORG with broadband Internet connection is the Office of the Regional Vice Governor (ORVG).

3. **Peripherals and Office Automation Software** – Peripherals and office automation software in the ORG is generally limited to operating systems (MS Windows), word processing and spreadsheet. Presentation software, e.g. PowerPoint is not available in other offices except for the Chief of Staff (CoS). The absence of presentation software in the Bureau of Public Information (BPI) needs to be noted. As the information arm of the ORG, the BPI, for obvious reasons, should have access to state of the art presentation software. Software License, which was one of the items asked in the survey sheets, did not generate any response from the respondents. This could probably be an indication that the users are not aware of software licenses since these are normally marketed and sold as bundled item with the hardware.

4. **Specialized Software and Customized Application** - Included under this software category are database programs (e.g. FoxPro, MS Access), programming languages (such as C++, Visual Basic), Specialized Software (e.g. GIS and other mapping software) and Customized Software (e.g. financial reporting software). Only two offices in the ORG have access to customized software. These are the Finance Budget and Management Service (FBMS) and Administrative Management Service (AMS). Both offices use customized software for financial reporting.

5. **Proficiency in Basic Office Automation Software** – The majority of respondents from the different ORG offices are not proficient in basic office automation software indicating the lack of skills of ORG personnel in using office automation software. Office automation software includes (1) operating systems, (2) word processing, (3) spreadsheet programs, (4) presentation software and (5) utilities.

6. **Proficiency in Specialized Software** - No one among the respondents from the ORG is proficient in any of the specialized software. This is taken as an indication of the general lack of staff proficient in specialized software within the ORG offices.

7. **Proficiency in Systems Administration, Networking and Systems Development** - ORG Group lacks expertise in this aspect of IT. Not one of the respondents from ORG is proficient in any of the aspects of networking, hardware maintenance, systems administration and development.

8. **Level of IT Skills** – Most of the offices in the ORG have the basic hardware and software requirements for IT such as pc's with windows operating system and are generally computer literate except for the RGO, DGIP, OSG, ISS, and RRUC. The ORG does not have a facility for e-governance. It lacks infrastructure such as internet connectivity, local area network (LAN), and internet-ready office applications.

Table 1

OFFICE OF THE REGIONAL GOVERNOR (ORG)

I. INVENTORY OF HARDWARE, SOFTWARE AND INTERCONNECTIVITY

	Regional Governor's Office	Office of the Exec. Sec	Office of Chief of Staff	Dep Gov for Indigenous Peoples	Bureau of Public Info	Office of the Sol Gen	Fin'ce & Budget Mgt Svc	Admin Mgt Service	Technical Mgt Service	Manila Liaison Office	Office of the Regional Vice Gov	Internal Security Service	Reconciliation & Unificatn Commission	Total
Computer Hardware Inventory														
PENTIUM 4 Server	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PENTIUM 4 Desktop	0	0	0	0	1	0	3	5	0	5	3	0	0	17
PENTIUM 4 Laptop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PENTIUM 3 Server	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PENTIUM 3 Desktop	0	1	0	0	0	0	0	1	2	0	0	0	0	4
PENTIUM 3 Laptop	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Older Server	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Older Desktop	0	0	0	0	2	0	7	2	2	0	0	0	0	13
Older Laptop	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Computer Hardware	**0**	**1**	**0**	**0**	**3**	**0**	**10**	**8**	**5**	**5**	**3**	**0**	**0**	**35**
Availability of Interconnection														
Dial-Up Internet	-	-	-	-	-	-	-	-	-		-	-	-	
Broadband Internet	-	-	-	-	-	-	-	-	-		available	-	-	
Local Area Network (LAN)	-	-	-	-	-	-	-	-	-		-	-	-	
Wide Area Network (WAN)	-	-	-	-	-	-	-	-	-		-	-	-	
Availablity of Office Automation Software														
OS	-	available	available	-	available	-	available	available	available		available	-	-	
Word Processor	-	available	available	-	available	-	available	available	available		available	-	-	
Spreadsheet	-	available	available	-	available	-	available	available	available		available	-	-	
Presentation Software	-	-	available	-	-	-	-	-	-		-	-	-	
Utilities	-	-	-	-	-	-	-	-	-		-	-	-	
License	-	-	-	-	-	-	-	-	-		-	-	-	
Availability of Specialized Software and Customized Applications														
Database	-	-	-	-	-	-	-	-	-	-	-	-	-	
Specialized Software	-	-	-	-	-	-	-	-	-	-	-	-	-	
Programming Language	-	-	-	-	-	-	-	-	-	-	-	-	-	
Customized Software	-	-	-	-	-	-	available	available	-	-	-	-	-	

II. ASSESSMENT OF SKILLS

Number of Respondents Proficient in Basic Automation Software														
Operating System	-	-	-	-	-	-	1	-	-	-	-	-	-	1
Word Processor	-	-	-	-	-	-	-	-	1	-	2	-	-	3
Spreadsheet	-	-	-	-	-	-	1	-	-	-	1	-	-	2
Presentation	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Utilities	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Number of Respondents Proficient in Specialized Software														
Database	-	-	-	-	1	-	-	-	-	-	-	-	-	1
Programming Language	-	-	-	-	1	-	-	-	-	-	-	-	-	1
Specialized Software	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Graphics/Animation	-	-	-	-	-	-	-	-	-	-	-	-	-	0
CAD/GIS	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Number of Respondents Proficient in Systems Administration, Networking, and Systems Development														
Data Com	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Hardware Maintenance	-	-	-	-	-	-	-	-	-	-	-	-	-	0
System Admin	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Systems Development	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Level of Skills (based on Standards of Measure set in Exhbit B)														
IT Category	none	Basic	Basic	none	Basic	none	Basic	Basic	Basic		Basic	none	none	
Skill Level	none	Computer Literate	Computer Literate	none	Computer Literate, Advance User	none	Computer Literate	Computer Literate	Computer Literate		Computer Literate, Advance User	none	none	

4.2. The Principal ARMM Offices

The following paragraphs refer to Table 2, page 11 of this document.

1. **Computer Hardware** - The Principal ARMM Offices (PAO) have a total number of 171 notebooks and desktops (with servers). Sixty-five of these desktops are Pentium II and older while 106 are Pentium III and newer. Three departments have Pentium IV server and these are CHED, DOST and DTI. The CHED server will reportedly be put into service after CHED has moved to its new office.
2. **Interconnection** - Of the 15 offices in PAO, only 5 have access to dial-up Internet and only DTI has access to broadband Internet. DOST and DTI are the only ones with local area network. On the other hand, not one among the principal departments has access to wide area network.
3. **Peripherals and Office Automation Software** - Majority in the PAO possess basic automation software from operating system to utilities. The only exceptions are DOT and DOTC. DOT does not have presentation software and utilities, while DOTC does not have presentation software. The need of DOT for presentation software should not be overlooked. The DOT needs to have computerized presentation since this is an effective, and therefore necessary tool for marketing the tourism assets of the region.
4. **Specialized Software and Customized Applications** - Database programs are not popular among the PAO departments covered by the assessment. The only two departments that use or have access to database programs are DOH and DOST. DOH also reported to have access to programming languages. As for specialized software, it is reported that 4 departments have access to different specialized software. While 6 departments use customized software.
5. **Proficiency in Basic Office Automation Software** - No one among the respondents in three departments in PAO (i.e. DENR, DOH, and DOTC) is proficient in office automation software. The absence of proficiency in presentation software in DOT needs to be attended to considering that one of the functions of this department is to showcase and market tourism assets of the region.

   There is a relatively high number of proficient staff in office automation in the RPDO compared to the other offices of the ARG. There were also more respondents from this office.
6. **Proficiency in Specialized Software** - Very few of the respondents from the principal departments are proficient in specialized software. There are two exceptional respondents from the principal departments, one from DPWH and one from DTI. These two respondents claim to be adept at using specialized software. The respondent from DPWH apparently gained proficiency from overseas work experience.

7. **Proficiency in Systems Administration, Networking and Systems Development** - The PAO group is inferred to be of similar state as ORG, with only very few respondents who rate themselves as proficient in certain aspects of data communication, hardware maintenance and systems development and administration. The respondents from DPWH and DTI who reported to be proficient in these aspects of IT are the same respondents who are proficient in specialized software as well.
8. **Level of IT Skills** – All of the Principal ARMM Offices possess the basic hardware and software requirement for IT. In fact, two offices, DTI and RPDO are considered ready for Stage 1 E-Government (i.e., ready for a simple website). Computer literacy is likewise high with some Advanced and Technical Users. Some offices have personnel who have the skills needed to create a simple website.

Table 2

PRINCIPAL ARMM OFFICES (PAO)

I. INVENTORY OF HARDWARE, SOFTWARE AND INTERCONNECTIVITY

	Comm on Higher Education	Dept of Agri & Fisheries	Dept of Agrarian Reform	Dept of Env & Nat'rl Resources	Dept of Education	Dept of Interior & Local Govt	Dept of Health	Dept of Labor & Emplymt	Dept of Science & Tech	Dept of Tourism	Dept of Transpo & Comm.	Dept of Public Hways	Dept of Social Welfare	Dept of Trade & Industry
Computer Hardware Inventory														
PENTIUM 4 Server	1								1					1
PENTIUM 4 Desktop	4	8		6	15	1	2	4	0	0		2	6	4
PENTIUM 4 Laptop	0	2	0	0	0	0	0	0	0	0		0	0	0
PENTIUM 3 Server	0	0	0	0	0	0	0	0	0	0		0	0	0
PENTIUM 3 Desktop	0	3	7	0	3	1	0	0	3	0		0	1	2
PENTIUM 3 Laptop	0	2	1	0	0	0	2	0	20	0		0	0	0
Older Server	0	0	0	0	0	0	0	0	0	0		0	0	0
Older Desktop	7	1	0	7	2	5	10	0	0	1		11	3	4
Older Laptop	0	0	0	0	0	0	0	0	2	0		0	0	0
Total Computer Hardware	12	16	8	13	20	7	14	4	26	1		13	10	11
Availability of Interconnection														
Dial-Up Internet	-	-	available	-	-	-	available	-	available	-	-	-	available	-
Broadband Internet	-	-	-	-	-	-	-	-	-	-	-	-	-	available
Local Area Network (LAN)	-	-	-	-	-	-	-	-	available	-	-	-	-	available
Wide Area Network (WAN)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Availablity of Office Automation Software														
OS	available	available	available	available	available	available	available	available	available	available	available	available	available	available
Word Processor	available	available	available	available	available	available	available	available	available	available	available	available	available	available
Spreadsheet	available	available	available	available	available	available	available	available	available	available	available	available	available	available
Presentation Software	available	available	available	available	available	available	available	available	available	-		available	available	available
Utilities	available	available	available	available	available	available	available	available	available	-	available	available	available	available
License	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Availability of Specialized Software and Customized Applications														
Database	-	-	-	-	-	-	available	-	available	-	-	-	-	-
Specialized Software	-	-	available	-	-	-	available	-	available	-	-	available	-	-
Programming Language	available	-	-	-	-	-	available	-	-	-	-	-	-	-
Customized Software	-	-	available	available	-	available	available	-	available	-	-	-	-	available

II. ASSESSMENT OF SKILLS

Number of Respondents Knowledgeable in Basic Automation Software														
Operating System	-	1	1	-	1	1	-	1	1	-	-	1	-	3
Word Processor	-	2	1	-	2	1	-	2	1	1	-	1	-	4
Spreadsheet	-	1	1	-	-	1	-	2	1	1	-	2	-	3
Presentation	-	1	1	-	1	-	-	1	-	-	-	1	1	2
Utilities	-	1	-	-	1	-	-	1	-	-	-	1	-	1
Number of Respondents Knowledgeable in Specialized Software														
Database	-	1	-	-	-	-	-	-	-	-	-	1	-	1
Programming Language	-	-	-	-	1	-	-	-	-	-	-	1	-	-
Specialized Software	-	-	-	-	-	-	-	-	-	-	-		-	-
Graphics/Animation	-	-	-	-	1	-	-	1	-	-	-	1	-	1
CAD/GIS	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Number of Respondents Knowledgeable in Systems Administration, Networking and Systems Development														
Data Com	-	-	-	-	1	-	-	-	-	-	-	1	-	1
Hardware Maintenance	-	-	-	-	-	-	-	-	-	-	-	1	-	1
System Admin	-	1	-	-	-	-	-	-	-	-	-	1	-	1
Systems Development	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Level of Skills (based on Standards of Measure set in Exhbit B)														
IT Category	none	Basic	Basic	none	Basic	none	Basic	Basic	Basic		Basic	none	none	
Skill Level	none	Computer Literate	Computer Literate	none	Computer Literate, Advance User	none	Computer Literate	Computer Literate	Computer Literate		Computer Literate, Advance User	none	none	

4.3. The Other ARMM Offices

The following paragraphs refer to Table 3, page 13 of this document.

1. **Computer Hardware** - The 9 departments classified under "Other ARMM Offices" (OAO) share a total of 45 computers. Nine of these are Pentium II and older while 36 are Pentium III and higher
2. **Interconnection** - Only the National Statistics Office (NSO) has access to broadband Internet, local area network and wide area network. This is mainly attributed to the public service "SERBILIS" program that the NSO is, at present, implementing. Other offices that have some level interconnection are RBOI and TESDA, which have local area network. While four offices, HLURB, ORT, RBOI and TESDA, have access to dial-up Internet
3. **Peripherals and Office Automation Software** - Except for the Bureau of Youth Affairs (BYA) and Regional Ports Management Authority (RPMA) all the other offices in this group (i.e., Other ARMM Offices (OAO) have complete basic office automation software.
4. **Specialized Software and Customized Applications** – Four of the nine offices in OAO do not use any specialized software. CDA, HLURB, NSO, ORT and RBOI, however, have specialized and customized software.
5. **Proficiency in Basic Office Automation Software** - Staff proficient in all of the office automation software is available in 4 out of nine offices in OAO. In other offices, proficiency of the respondents is limited to one or two basic office automation software. Not one of the respondents from CDA is proficient in any of the office automation software. (Refer to Exhibit D – 3)
6. **Proficiency in Specialized Software** -The HLURB, NSO, RPMA and TESDA stand out among the other ARMM offices inasmuch as these have respondents who are proficient in one or two specialized software. It should be noted that there is no respondent from HLURB who is proficient in CAD/GIS considering that this is one office that works with maps and plans.
7. **Proficiency in Systems Administration, Networking and Systems Development** - Of the different offices under the OAO, only NSO, RPMA and TESDA have staff who are proficient in data communication, hardware maintenance, systems administration and systems development.
8. **Level of IT Skills** – All of the offices in the OAO group have basic requirement for IT. Two, TESDA and RBOI are considered to belong to Intermediate categories while one, NSO, is ready for Stage 1 E-Government (i.e., ready for a simple website). The offices are likewise computer literate with some Advance Users except TESDA, which has a Technical User.

Table 3

OTHER ARMM OFFICES (OAO)

I. INVENTORY OF HARDWARE, SOFTWARE AND INTERCONNECTIVITY

	OFFICES									
	BCH	BYA	CDA	HLURB	NSO	ORT	RBOI	RPMA	TESDA	Total
Computer Hardware Inventory										
PENTIUM 4 Server	0	0	0	0	0	0	0	0	0	0
PENTIUM 4 Desktop	1	0	0	0	0	4	3	1	4	13
PENTIUM 4 Laptop	0	0	0	0	0	0	2	0	1	3
PENTIUM 3 Server	0	0	0	0	2	1	0	0	0	3
PENTIUM 3 Desktop	0	0	0	2	6	4	0	0	4	16
PENTIUM 3 Laptop	0	0	0	0	1	0	0	0	0	1
Older Server	0	0	2	0	0	0	0	0	0	2
Older Desktop	0	0	0	2	0	0	0	0	0	2
Older Laptop	0	1	0	0	0	0	2	1	1	5
Total Computer Hardware	**1**	**1**	**2**	**4**	**9**	**9**	**7**	**2**	**10**	**45**
Availability of Interconnection										
Dial-Up Internet	-	-	-	available	-	available	available	-	available	
Broadband Internet	-	-	-	-	available	-	-	-	-	
Local Area Network (LAN)	-	-	-	-	available	-	available	-	available	
Wide Area Network (WAN)	-	-	-	-	available	-	-	-	-	
Availablity of Peripherals and Office Automation Software										
OS	available	available	available	available	available	available	available	available	available	
Word Processor	available	available	available	available	available	available	available	available	available	
Spreadsheet	available	available	available	available	available	available	available	available	available	
Presentation Software	available	available	available	available	available	available	available	available	available	
Utilities	available	-	available	available	available	available	available	-	available	
License	-	-	-	-	-	-	-	-	-	
Availability of Specialized Software and Customized Applications										
Database	-	-	available	-	-	-	-	-	-	
Specialized Software	-	-	-	available	-	-	-	-	-	
Programming Language	-	-	-	-	-	available	available	-	-	
Customized Software	-	-	available	available	available	available	available	-	-	

II. ASSESSMENT OF SKILLS

Number of Respondents Knowledgeable in Basic Automation Software										
Operating System	1	1	-	3	3	2	-	3	4	17
Word Processor	1	2	-	6	5	4	1	4	4	27
Spreadsheet	-	2	-	3	4	2	-	2	3	16
Presentation	-	-	-	2	2	-	-	1	1	6
Utilities	-	-	-	2	3	-	-	1	2	8
Number of Respondents Knowledgeable in Specialized Software										
Database	-	-	-	-	-	-	-	-	1	1
Programming Language	-	-	-	2	1	-	-	1	2	6
Specialized Software	-	-	-	-	-	-	-	-	-	0
Graphics/Animation	-	-	-	2	1	1	-	1	-	5
CAD/GIS	-	-	-	-	-	-	-	-	-	0
Number of Respondents Knowledgeable in Systems Administration, Networking and Systems Development										
Data Com	-	-	-	-	-	-	-	1	1	2
Hardware Maintenance	-	-	-	-	1	-	-	1	1	3
System Admin	-	-	-	2	1	-	-	1	1	5
Systems Development	-	-	-	-	1	-	-	1	1	3
Level of Skills (based on Standards of Measure set in Exhbit B)										
IT Category	Basic	Basic	Basic	Basic	Basic, e-gov't ready	Basic	Basic, Intermediate	Basic	Basic	Basic
Skill Level	Computer Literate	Computer Literate	Computer Literate	Computer Literate, Advance User	Computer Literate, Advance User	Computer Literate, Advance User	Computer Literate	Computer Literate, Advance User	Computer Literate, Advance User	Computer Literate, Advance User, Technical User

5. Recommendations

5.1. Recommended IT Plan

For the ARG to evolve into a more effective organization with an IT system that is capable of internal and external networking, web presence, e-governance, modern personnel management, and more efficient accounting, budgeting, payroll system, its offices must first be equipped with the necessary hardware, software, systems, applications and training, therefore, the IT Plan for the entire ARG is divided into three (3) components, namely:

Component 1 – Assessment of computer and networking capacities in the ORG and ARG; establishment of a Local Area Network, Wide Area Network, Internet connectivity for, and among, the 13 offices in the Office of the Regional Governor, the Principal Departments and Other ARMM Offices, and provision of hardware, software and training on the use of the basic software. The items here may be considered the "basic" requirements of each office

Component 2 – Providing software applications for the ORG, the Principal Departments and Other ARMM Offices that would make these ready for e-governance. These include a transactional website, Personnel Management Information System, Payroll System, Accounting System, and Procurement System. Selected staff from the Finance and Personnel departments of each office would be trained in the use of the Personnel, Payroll, Accounting and Procurement systems. Training for Internet applications development is included in this phase.

Component 3 - The Ideal Scenario. Providing additional infrastructure to improve the availability of IT resources to ARMM personnel. This component provides what is considered the "ideal" distribution of PCs and software since it improves PC resource availability and effectiveness in each office.

Presented in the following Section are the details of the above Components. In sum, Component 1 incorporates the hardware, software, and connectivity that the ARG must possess to be considered e-government ready; Component 2 addresses requirements for management applications and a transactional website. The ideal scenario, Component 3 aims for improved availability of PC,

software, training and LAN in all the ORG and ARG offices in addition to the systems and the website.

Each component has been provided with its own set of objectives, hardware, software, systems requirements (if applicable) as well as budget and timelines to give aid agencies a choice of whether to extend assistance to a particular component or organizational group, instead of forcing an aid agency to fund the project in its entirety (i.e., selective vs. "all or nothing")

Section 7.0 (Table 8, page 45) shows the detailed breakdown of the items that will be delivered to each office.

5.2. IT PACKAGES

5.2.1. Component 1: Assessment of computer and networking capacities in the ORG and ARG; establishment of a Local Area Network, Wide Area Network, Internet connectivity for, and among, the 13 offices in the Office of the Regional Governor, the Principal Departments and Other ARMM Offices, and provision of hardware, software and training on the use of the basic software. The items here may be considered the "basic" requirements of each office.

This component establishes the basic network (LAN and WAN) infrastructure (hardware, software, skills and Internet connectivity) within and among the Offices of the Regional Governor and the other Departments and Offices in the ARMM Regional Government.

5.2.1.1. Objectives

- To deploy computers in the ORG, Principal Departments and Other Offices in the ARMM Regional Government. Each PC will have an inkjet printer, licensed operating system and a 500VA UPS.
- To provide these offices with department-level printers. A department-level printer is a printer that is directly connected to the LAN and is meant to be shared by all the users who are connected to the LAN.
- To upgrade the existing PCs (Pentium III and up only) in the each office with licensed MS WINDOWS XP Operating System and licensed MS Office software.
- To equip the newly-delivered PC and the existing Pentium III PCs with the basic office automation software (e.g. MS Office)

- To link the newly-delivered PC and the existing Pentium III PCs in each office via Local Area Network (LAN).
- To link each office via a wireless Wide Area Network (WAN).
- To set up a Network Operations Center for the each of the offices.
- To provide these offices with high-speed (broadband) connections to the Internet.
- To train personnel on the use of the basic office automation software (e.g. word processor, spreadsheet, presentation software) and the Internet.

5.2.1.2. Components of the Project

- **Computer hardware provisioning**: A total of 314 PCs are required for the basic configuration. Each PC will have a licensed OEM (original equipment manufacturer) copy of MS Windows (XP Professional) pre-installed, an inkjet printer and AVR. Fifty department-level printers will be delivered and distributed among the different offices. Each department-level printer will be connected to the LAN and will be shared by all PCs that are on the LAN.
- **Software**: The newly-acquired PCs will be equipped with MS Office. MS Office will also be installed in the other existing Pentium III PCs (179 units). The operating system of the existing Pentium III PCs will be upgraded to MS WINDOWS XP Professional. Likewise, it is recommended that web site creation tools be acquired (i.e. MS Frontpage). To minimize costs, open source components should be considered.
- **LAN**: Installation of a Local Area Network (LAN) and its related hardware (hubs, network cables, sockets, plugs, and related civil works) in the offices of the ORG, the Principal Departments and the Other ARMM Offices. Each PC in these offices that is at least a Pentium III will be configured to connect to the LAN. A room in each of the offices will be converted into the Network Operations Center (NOC) of that particular office. This NOC will house all the LAN and connectivity-related hardware.
- **WAN**: Installation of a Wide Area Network (WAN) and its related hardware. The proposed WAN will be wireless. This configuration will allow the WAN to be set up in the least amount of time while minimizing the amount of civil works. A wired connection will not have this advantage. Other considerations for going wireless are: the possibility of transferring the seat of the ARMM government to a city

other than Cotabato City and the existence of offices that are not within the ARMM compound (i.e. TESDA, CHED and HLURB). Once this WAN is active, all the offices in the ARMM Regional Government can communicate with each other.

- **Internet**: Installation of a proxy server/gateway in each of the offices and connecting the LAN of each office to the Internet via a proxy server/gateway. The Internet connection for this component will follow a different approach. Rather than providing each office with its own Internet connection, a set of high-speed (broadband) Internet connections will be pooled and managed using a bandwidth manager. This available bandwidth will then be channeled through a server into the WAN of the ARG then to the LAN of each office, thereby making it available to all computers attached to the WAN. The pooled Internet connections may be hosted by the NOC of the ORG.
- **Training:** Training will be focused on the following software packages:
    a. MS Windows
    b. MS Word
    c. MS Excel
    d. MS PowerPoint
    e. MS Access (non-programming)
    f. Internet Explorer
    g. MS Outlook/MS Outlook Express

In addition to these, the Consultants suggest that separate executive training sessions be carried out for the top officials of the ORG and ARG offices. The objective of these executive training sessions, in addition to teaching them basic IT concepts and software usage, is to impart to these officials the uses and advantages of an automation system. Once these advantages are understood, they are more likely to champion, and to assure the sustainability of, computerization of government processes.

5.2.1.3. Output

- Delivery, installation and configuration of PCs
- Delivery, installation of software on the PCs
- Installation, testing and operationalization of the LAN
- Setting up and configuration of the Network Operations Center
- Delivery and configuration of the department-level printers

- Installation, testing and operationalization of the WAN
- Installation and activation of the broadband Internet connection
- Installation and activation of the broadband Internet connection for the Manila Liaison Office
- Installation and configuration of the Internet connection and proxy server/gateway.
- Personnel trained in the use of the basic office automation software, Internet browsing and e-mail.
- Personnel trained in the administration of the Local Area Network and the Wide Area Network.

5.2.1.4. Estimated Duration

The estimated duration to complete the implementation of the components enumerated in this component is 12 months. Some items in this component may be performed in parallel to shorten the duration.

5.2.1.5. Estimated Budget

The estimated budget for implementing this component for each of the offices is **PhP 81,913,100** . Table 4 summarizes the items that will be delivered in this component along with the estimated budget for each item.

Table 4
Summary of the IT requirements under Component 1

Item	Units	Item Total (PhP)
Hardware		
Department laser printer	50	1,750,000
PC	314	36,424,000
Proxy server	25	1,875,000
Software		
MS Frontpage 2002	50	500,000
MS Office (XP)	493	7,888,000
MS Windows XP Professional	179	

		1,432,000
Local Area Network		
LAN connections	736	4,526,400
Network Operations Center	25	8,900,000
Internet Connection		
Internet Connection - MRC	60	1,296,000
Internet Connection - OTC	5	220,000
Training		
Intro to Microcomputers and Internet	493	1,133,900
IT for Executives	83	254,500
MS Access (Intro)	493	1,281,800
MS Excel	493	1,725,500
MS PowerPoint	493	1,725,500
MS Word	493	1,725,500
Network Administration	50	1,000,000
WAN maintenance and admin.	50	1,750,000
Wide Area Network		
Bandwidth manager	1	280,000
Base Station Unit	6	2,100,000
Subscriber unit	25	2,250,000
Router	25	1,875,000
Estimated Budget for Component 1		**81,913,100**

5.2.2. Component 2: Providing software applications for the ORG, the Principal Departments and Other ARMM Offices that would make these ready for e-governance. These include a transactional website, Personnel Management Information System, Payroll System, Accounting System, and Procurement System. Selected staff from the Finance and Personnel departments of each office would be trained in the use of the Personnel, Payroll, Accounting and Procurement systems. Training for Internet applications development is included in this phase.

This component seeks to equip the ORG and the ARG with e-government capacity including a transactional website and the following systems: Personnel Information, Payroll, Accounting and Procurement. One of the goals of this component is to have a set of common/similar systems deployed among the offices of the ORG and ARG. This will minimize development cost and facilitate consolidation of reports later on. As such, deployment of the systems in the other offices only requires minor customization on the part of the developer.

As much as possible, if existing systems are already being used in the National Government Agencies (NGAs), these systems will be acquired and suitably adopted for use in the ARMM. Among the key applications that are best adopted from those used by the NGAs are the Personnel Information System and the eProcurement System. Once the national eProcurement system of the National Government is in place, the infrastructure acquired by the ORG and ARG (Component 1), and the systems adopted through this component, will allow the ARMM government to participate in the nationwide e-Procurement program.

5.2.2.1. Objectives

- To set up a server that will host the web site.
- To provide a separate high-speed Internet connection for exclusive use of the website.
- To create a Stage 4 (transactional) web site that will contain information on the different offices that comprise the ARG.
- To provide resources for the maintenance of the website.
- To acquire a domain name for the website.
- To develop the Payroll System and Accounting System for the ORG and ARG.

- To adopt the Personnel Information System (Kompyuserb) for use in the ORG and ARG.
- To adopt the e-Procurement system that will be used by the national government for use in the ORG and ARG.
- To deliver and configure the PCs that will be used by the four systems.
- To deploy the Personnel Management Information System (Kompyuserb), Payroll System, Accounting System, and e-Procurement System in the ORG and ARG.
- To train Finance and Administration personnel on the use of the Personnel Information System, Payroll System, Accounting System, and e-Procurement System.
- To train selected ARMM personnel in each office in the different aspects of web applications development.

5.2.2.2. Components of the Project

- **Website :** As an initial step, a Stage 4 – compliant web site should be created for the entire ARG. All of the offices included in this website would have their own sections/pages in this portal. The websites would be hosted in a server that is configured solely for this purpose. This server would be connected to the Internet via broadband Internet connection with a static IP address**.** The server would have the capacity to host the sites for all the sites of the offices of the ARMM Regional Government. Budget for the maintenance of the website will likewise be allocated.
- **Systems**: As mentioned above, four systems will be deployed in this component: Personnel Information System (PIS), Payroll System, e-Procurement System and Accounting System. For the PIS, the Consultants recommend the use of the Kompyuserb System (or K-System) that is being distributed by the Civil Service Commission. This system is already available and ready for deployment. Modifications to the Kompyuserb system may be needed to accommodate the needs of the ARG. Such modifications (e.g. changes in report headers) will be performed either by the personnel who were trained in Component 1 or by IT Consultants commissioned by the ARMM government. The other two systems would either be developed or sourced from other government agencies that have implemented similar systems (e.g. National Computer Center). Once the systems are developed, they would be installed on designated PCs in the Finance/Administration Division of each of the offices. Personnel will be trained on the use of these systems. Minor customization in the

programs (e.g. report headers, etc.) may be likely. Major revisions (e.g. change in database structure, program logic, changes in data entry forms, and the like) shall be subject to a separate change order. As much as possible, the systems should not vary significantly from office to office.

- **Training :** The training would focus on the following:
    a. Personnel Information System (users and administrator)
    b. Payroll System (users and administrator)
    c. Accounting System (users and administrator)
    d. e-Procurement System (users and administrator)
    e. Web applications development

5.2.2.3. Output

- A Stage 4 transactional website for the ARMM government.
- Server configured to host the ARMM web site.
- PCs that will be used to host each of the four systems in the different ARG offices.
- Separate broadband Internet connection with public IP address and domain name for use of the website.
- Making the web site/portal visible on the public Internet.
- Development/customization of the Personnel Information, Payroll, Accounting and e-Procurement systems.
- Installation of the systems on the designated PCs in the ORG and ARG.
- Customization of the four systems for use in each of the offices in the ARG
- Training of personnel on the use and administration of the application systems
- Personnel trained in the use of web site development tools.

Note: While training for web applications development is included in this component, the Consultant recommends that this aspect of training should take place in Component 1, if the implementation of Component 2 will come after the completion of Component 1. The reasons for this recommendation are:

- To have a ready pool of trained manpower who can work side-by-side with the developers of the ARMM website. This will ensure that the transfer of skills, techniques and know-how will take place between the web developers and the

ARMM personnel during the development phase of the website. This approach will ensure that **knowledgeable and trained** ARMM personnel will **actively participate** in the development of the site. This is deemed better than simply having an external developer create the website and turn it over to the ARMM as a finished product. Doing otherwise will mean that the finished website will be unfamiliar to the ARMM personnel tasked to maintain it since they did not participate in its development. This may hinder their efforts in maintaining, administering and further enhancing the website.

- To ensure that the ARMM has personnel who can maintain, administer and enhance the web site after it has been turned over by the developer to the ARMM.

5.2.2.4. Estimated Duration

The estimated duration to complete the implementation of Component 2 is 6 months. As in Component 1, some of the tasks in Component 2 may be executed in parallel to shorten the duration.

5.2.2.5. Estimated Budget

The estimated budget for implementing this component for each of the offices is **PhP 54,191,000** .

To arrive at the budget estimate for this project package, the following assumptions were made:

- The Personnel Information System (Kompyuserb System) will be sourced from the Civil Service Commission.
- The e-Procurement, Payroll and Accounting systems will either be developed or sourced from a government agency (e.g. NCC).
- The systems will be deployed in each of the offices that comprise the ORG and the ARG
- The characteristics of Stage 1, Stage 2, Stage 3 and Stage 4 websites will be supported by the ARMM website/portal.
- Once the first version of the website is launched, periodic updates/upgrades to its features shall be performed by the local staff.
- The local staff will be trained in the different aspects of developing applications for the web.

Table 5 summarizes the IT requirements of this component.

Table 5
Summary of the IT requirements under Component 2

Item	Units	Item Total (PhP)
Hardware for website and systems		
Server	1	350,000
PC - Systems	100	11,600,000
Systems		
System - Accounting	25	2,800,000
System - Payroll	25	2,800,000
System - Personnel Information	25	2,300,000
System - Procurement	25	2,800,000
Internet Connection		
connectivity to ISP (static IP) MRC	12	108,000
connectivity to ISP (static IP) OTC	1	5,000
Website		
Web site development	25	9,900,000
Web site maintenance	300	15,300,000
Domain name	1	5,000
Training		
Database Administration	50	1,000,000
Dynamic Web Page Development	50	243,000
HTML Web Page Development	50	250,000
Hypertext Preprocessor Programming	50	300,000
Interactive Multimedia Authoring	50	500,000
Internet Server Management	50	500,000
Java Programming	50	300,000
Linux Operating System	50	200,000
Perl Programming	50	280,000
Program Logic Formulation	50	250,000
Structured Analysis and Design	50	400,000
Visual Basic Programming	50	500,000
Training - Accounting System	75	375,000
Training - Payroll System	75	375,000
Training - Personnel Info System	75	375,000
Training - Procurement System	75	375,000
Estimated Budget for Component 2		**54,191,000**

5.2.3. COMPONENT 3: The Ideal Scenario. Providing additional infrastructure to improve the availability of IT resources to ARMM personnel.

This component is essentially components 1 and 2 with additional hardware and software to improve the ratio of PCs to the number of personnel in each office, thus making improving the availability of the resources (hardware, software, connectivity, etc.) to those who need them.

5.2.3.1. Objectives

- To deploy a total of 628 computers that will be distributed among the offices in the ARMM Regional Government. Each PC will have an inkjet printer, licensed operating system and a 500VA UPS.
- To provide the ORG, ARG Departments and Offices with 2 department level printers each. (A total of 25 recipient offices.) These printers shall be shared by all users within each office through the Local Area Network (LAN).
- To upgrade the existing PCs in the ORG and ARG with licensed MS WINDOWS XP Operating System and licensed MS Office software.
- To equip these computers (newly-acquired and existing PCs that are at least Pentium III) with the basic office automation software (e.g. MS Office)
- To link the computers (newly-acquired and existing PCs that are at least Pentium III) in the each office via LAN.
- To set up a Network Operations Center for the in each of the offices.
- To link each office via a wireless Wide Area Network (WAN).
- To set up a server that will host the web site.
- To provide a separate high-speed Internet connection for exclusive use of the website.
- To create a Stage 4 (transactional) web site that will contain information on the different offices that comprise the ARG.
- To provide resources for the maintenance of the website.
- To acquire a domain name for the website.
- To provide the offices with a high-speed connection to the Internet. This will be a pooled connection that will be managed centrally through a bandwidth manager.

- To train personnel on the use of the basic office automation software (e.g. word processor, spreadsheet, presentation software) and the Internet.
- To develop the Payroll System and Accounting System for the ORG and ARG.
- To adopt the Personnel Information System (Kompyuserb) for use in the ORG and ARG.
- To adopt the e-Procurement system that will be used by the national government for use in the ORG and ARG.
- To train two personnel from the each of the offices in web site development, WAN administration, database administration, Internet server management, structured analysis and design; and Visual Basic programming.
- To deploy the four (4) systems in each of the offices in the ARG. These systems are the Payroll, Accounting, Personnel Information and e-Procurement Systems.
- To train Finance and Administration personnel in each of these office on the use of the four systems.
- To deliver and configure the PCs that will be used by the four systems.

5.2.3.2. Components of the Project

- **Computer hardware provisioning**: A total of 628 PCs will be deployed in this component. Each PC should have a licensed copy of MS Windows (XP Professional) pre-installed, an inkjet printer and AVR. Two department-level printers will be delivered to the each of the offices covered by this component. This printer will be connected to the LAN and will be shared by all PCs that are on the LAN.
- **Software**: The newly-acquired PCs should be equipped with MS Office. MS Office should also be installed in the other existing PCs (179 units). The operating system of the existing PCs should be upgraded to MS WINDOWS XP Professional. Likewise, it is recommended that web site creation tools be acquired. To minimize costs, open source components should be considered.
- **LAN**: Installation of a Local Area Network LAN and its related hardware within the buildings that house each of the offices, and configuration of the PCs to connect to the LAN. A room in the each building will be converted into the Network Operations Center (NOC). This NOC will house all the LAN and connectivity-related hardware.

- **WAN**: Installation of a Wide Area Network (WAN) and its related hardware. The proposed WAN will be wireless. This configuration will allow the WAN to be set up in the least amount of time while minimizing the amount of civil works. A wired connection will not have this advantage. Other considerations for going wireless are: the possibility of transferring the seat of the ARMM government to a city other than Cotabato City and the existence of offices that are not within the ARMM compound (i.e. TESDA, CHED and HLURB). Once this WAN is active, all the offices in the ARMM Regional Government can communicate with each other.
- **Internet**: The Internet connection for this component will follow a different approach. Rather than providing each office with its own Internet connection, a set of high-speed (broadband) Internet connections will be pooled and managed using a bandwidth manager. This available bandwidth will then be channeled through a server into the WAN, thereby making it available to all computers attached to the WAN. A separate high-speed Internet connection shall be acquired for the Manila Liaison Office.
- **Training :** Training is focused on the following software packages:

    a. MS Windows
    b. MS Word
    c. MS Excel
    d. MS PowerPoint
    e. MS Access (non-programming)
    f. Internet Explorer
    g. MS Outlook

    Two persons from each office will also be trained in the use of web development technologies like java and html, database administration, network administration, and systems development.

    In addition to these, the Consultants suggest that an executive training session be carried out for the top officials of these offices. The objective of these executive training sessions is to impart to these officials the uses and advantages of an automation system. Once these advantages are understood, they, like their counterparts in the ORG, are more likely to champion, and to assure the sustainability of, computerization of government processes.
- **Website :** As an initial step, a Stage 4 – compliant web site should be created for the entire ARG. All of the offices included in this website would have their own

sections/pages in this portal. The websites would be hosted in a server that is configured solely for this purpose. This server would be connected to the Internet via broadband Internet connection with a static IP address**.** The server would have the capacity to host the sites for all the sites of the offices of the ARMM Regional Government. Budget for the maintenance of the website will likewise be allocated.

- **Systems :** The four systems that will be deployed are the Payroll, Accounting, Personnel Information and e-Procurement Systems. Since the core applications were developed for the ORG, it is expected that the versions that will be deployed in each of the ARG offices will require a small amount of customization (e.g. change in report headers and minor changes in the GUI).
- **Training** : The training would focus on the following software packages:
    a. Personnel Information System (users and administrator)
    b. Payroll System (users and administrator)
    c. Accounting System (users and administrator)
    d. e-Procurement System (users and administrator)
    e. Web applications development training

5.2.3.3. Output

- Delivery, installation and configuration of PCs
- Delivery, installation of software on the PCs
- Installation, testing and operationalization of the LAN
- Setting up and configuration of the Network Operations Center
- Installation, testing and operationalization of the WAN
- Installation and activation of the pooled broadband Internet connection
- Installation and configuration of the Internet connection and proxy server/gateway.
- Installation and activation of the broadband Internet connection for the Manila Liaison Office
- Personnel trained in the use of the basic office automation software, Internet browsing and e-mail.
- Personnel trained in the use of web site development tools, systems development and network administration.

- A stage 4 transactional website for the ARMM government.
- Server configured to host the ARMM web site.
- PCs that will be used to host each of the four systems in the different ARG offices.
- Separate broadband Internet connection with public IP address and domain name for use of the website.
- Making the web site/portal visible on the public Internet.
- Development/customization of the Personnel Information, Payroll, Accounting and e-Procurement systems.
- Customization of the four systems for use in each of the offices in the ARG.
- Installation of the systems on the designated PCs in each of the offices
- Training of personnel on the use and administration of the systems

5.2.3.4. Estimated Duration

The estimated duration to complete the implementation of the components enumerated in this component is 18 months.

5.2.3.5. Estimated Budget

The estimated budget for implementing this component for each of the offices is **PhP 183,765,300** .

Table 6 summarizes the items under this component.

Table 6
Summary of the IT requirements under Component 3

Item	Units	Item Total (PhP)
Hardware		
Department laser printer	50	1,750,000
PC	628	72,848,000
Proxy server	25	1,875,000
Software		
MS Frontpage 2002	50	500,000
MS Office (XP)	807	12,912,000
MS Windows XP Professional	179	1,432,000
Local Area Network		
LAN connections	960	5,904,000
Network Operations Center	25	8,900,000
Internet Connection		
Internet Connection – MRC	60	1,296,000
Internet Connection – OTC	5	220,000
Training		
Intro to Microcomputers and Internet	807	1,856,100
IT for Executives	83	254,500
MS Access (Intro)	807	2,098,200
MS Excel	807	2,824,500
MS PowerPoint	807	2,824,500
MS Word	807	2,824,500
Network Administration	50	1,000,000
WAN maintenance and admin.	50	1,750,000
Wide Area Network		
Bandwidth manager	1	280,000
Base Station Unit	6	2,100,000
Subscriber unit	25	2,250,000
Router	25	1,875,000
Hardware for website and systems		
Server	1	350,000
PC - Systems	100	11,600,000
Systems		
System - Accounting	25	2,800,000
System - Payroll	25	2,800,000
System - Personnel Information	25	2,300,000

System - Procurement	25	2,800,000
Internet Connection		
connectivity to ISP (static IP) MRC	12	108,000
connectivity to ISP (static IP) OTC	1	5,000
Website		
Web site development	25	9,900,000
Web site maintenance	300	15,300,000
Domain name	1	5,000
Training		
Database Administration	50	1,000,000
Dynamic Web Page Development	50	243,000
HTML Web Page Development	50	250,000
Hypertext Preprocessor Programming	50	300,000
Interactive Multimedia Authoring	50	500,000
Internet Server Management	50	500,000
Java Programming	50	300,000
Linux Operating System	50	200,000
Perl Programming	50	280,000
Program Logic Formulation	50	250,000
Structured Analysis and Design	50	400,000
Visual Basic Programming	50	500,000
Training - Accounting System	75	375,000
Training - Payroll System	75	375,000
Training - Personnel Info System	75	375,000
Training - Procurement System	75	375,000
Estimated Budget for Component 3		**183,765,300**

Table 7 summarizes the differences between the items that will be delivered in Component 1 against the items that will be delivered in Component 3. Table 8 shows the differences between the items that will be delivered in Component 2 against the items that will be delivered in Component 3.

In terms of Peso Value, the additional deliverables amount to **PhP 47,661,200 .**

Table 7
Incremental Difference between Components 1 and 2 and Component 3

Item	Units	Item Total (PhP)
Hardware		
Department laser printer	-	-
PC	314	36,424,000
Proxy server	-	-

Software		
MS Frontpage 2002	-	-
MS Office (XP)	314	5,024,000
MS Windows XP Professional	-	-
Local Area Network		
LAN connections	224	1,377,600
Network Operations Center	-	-
Internet Connection	-	-
Internet Connection - MRC	-	-
Internet Connection - OTC	-	-
Training		
Intro to Microcomputers and Internet	314	722,200
IT for Executives	-	-
MS Access (Intro)	314	816,400
MS Excel	314	1,099,000
MS Powerpoint	314	1,099,000
MS Word	314	1,099,000
Network Administration	-	-
WAN maintenance and admin.	-	-
Wide Area Network		
Bandwidth manager	-	-
Base Station Unit	-	-
Subscriber unit	-	-
Router	-	-
Hardware for website and systems		
Server	-	-
PC - Systems	-	-
Systems		
System - Accounting	-	-
System - Payroll	-	-
System - Personnel Information	-	-
System - Procurement	-	-
Internet Connection		
connectivity to ISP (static IP) MRC	-	-
connectivity to ISP (static IP) OTC	-	-
Website		
Web site development	-	-
Web site maintenance	-	-
Domain name	-	-

Training		
Database Administration	-	-
Dynamic Web Page Development	-	-
HTML Web Page Development	-	-
Hypertext Preprocessor Programming	-	-
Interactive Multimedia Authoring	-	-
Internet Server Management	-	-
Java Programming	-	-
Linux Operating System	-	-
Perl Programming	-	-
Program Logic Formulation	-	-
Structured Analysis and Design	-	-
Visual Basic Programming	-	-
Training - Accounting System	-	-
Training - Payroll System	-	-
Training - Personnel Info System	-	-
Training - Procurement System	-	-

5.3. Implementation Schedule

Component 1 will take approximately 12 months to complete. Component 2 will take approximately 6 months to complete. Component 3 has an estimated duration of 18 months.

The following table depicts a possible implementation scenario.

Component	Duration	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Component 1	***12 months***																		
Component 2	***6 months***																		
Component 3	***18 months***																		

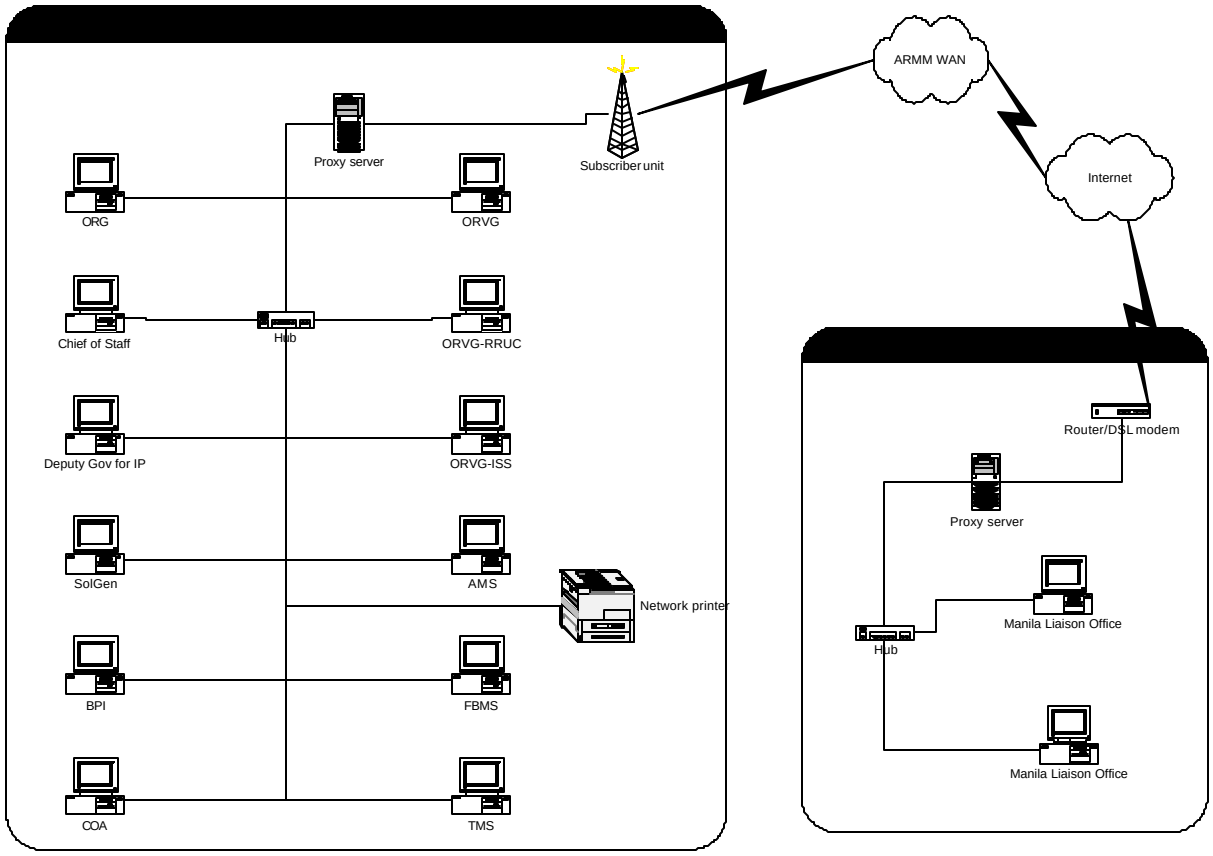
Components 1 and 2 contain the minimum requirements for the ARMM to be ready for e-governance. Component 3 is the ideal package. It contains the items present in Components 1 and 2 with additional PCs to improve the availability of IT resources to the ARMM personnel. If one chooses to implement Component 3, there is no need to implement Components 1 and 2.

5.4. INTERCONNECTIVITY

Presented hereunder and in the succeeding pages are diagrams of proposed installations and their related hardware within the buildings housing the offices and the configuration of the PC to connect to the Local Area Network (LAN) and the Wide Area Network (WAN).

Diagram 1 shows the interconnection of the networks of the Office of the Regional Governor and the Manila Liaison Office

Diagram 1: Network Diagram – ORG and Manila Liaison Office



In this, and the following illustration, it should be noted that for the offices located in Cotabato City, the primary means of gaining access to the Internet is via the ARMM WAN.

Diagram 2: Network Diagram – Departments/Office in ARMM

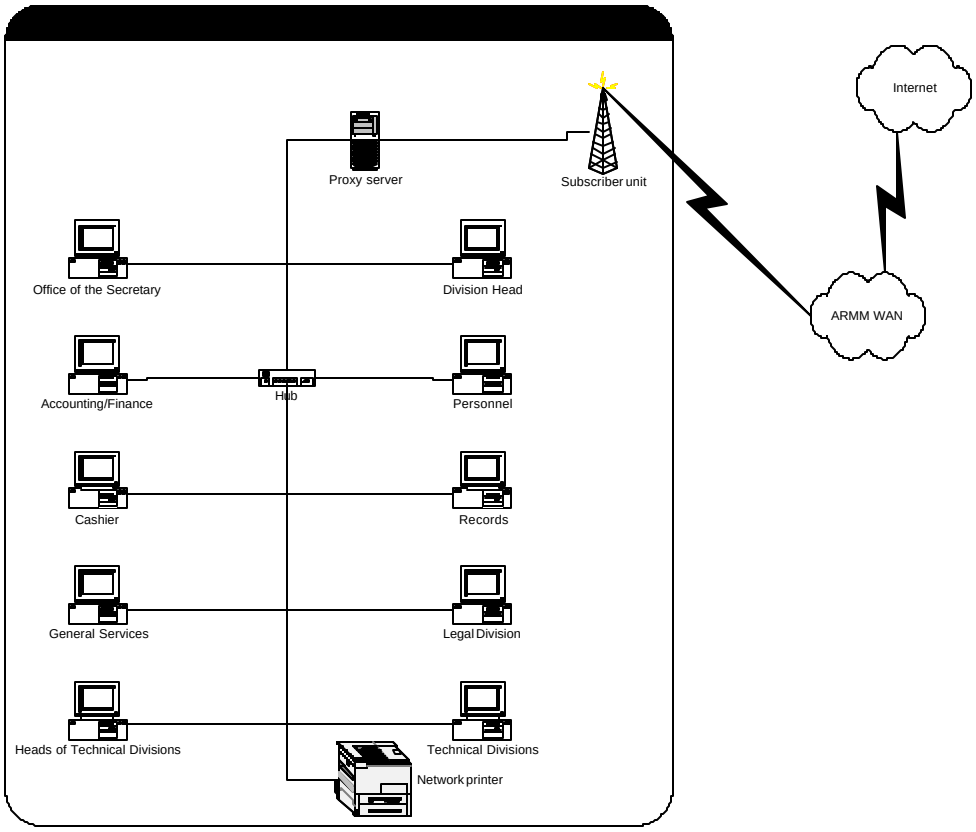
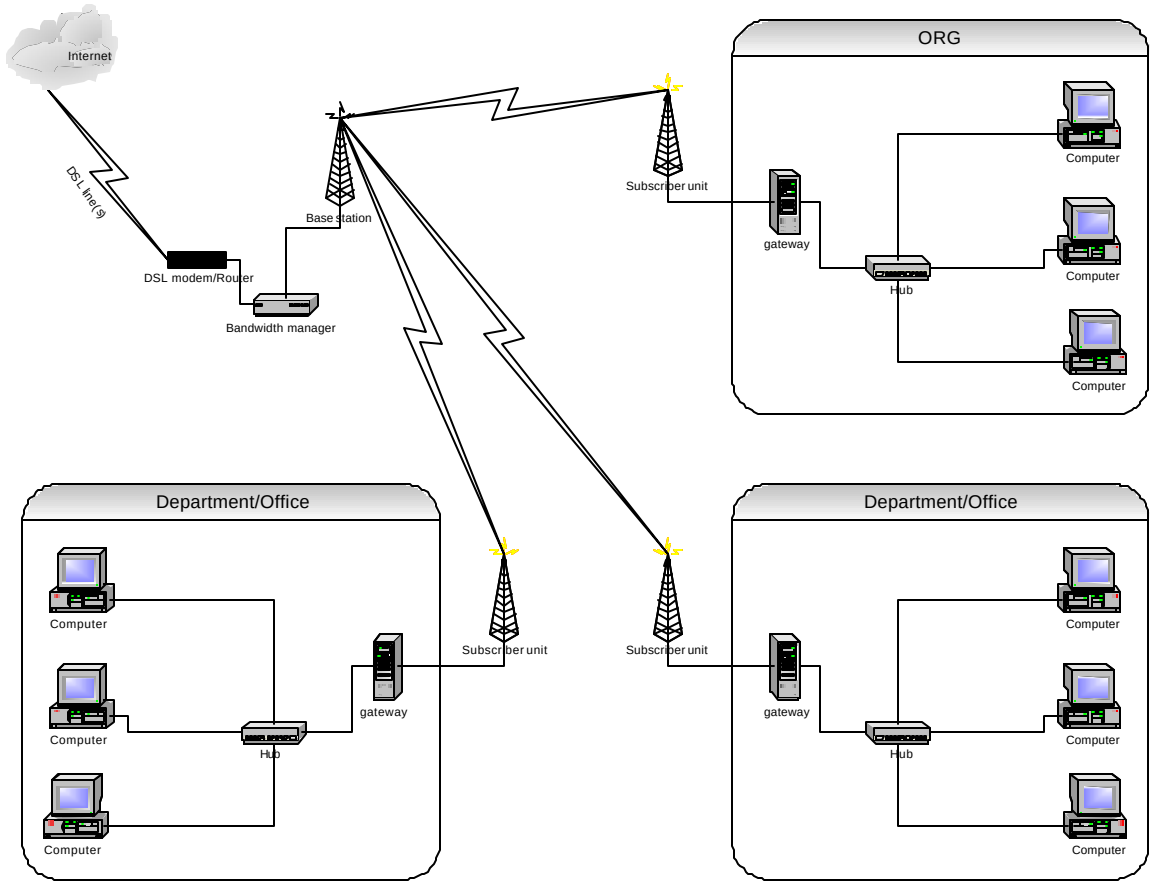


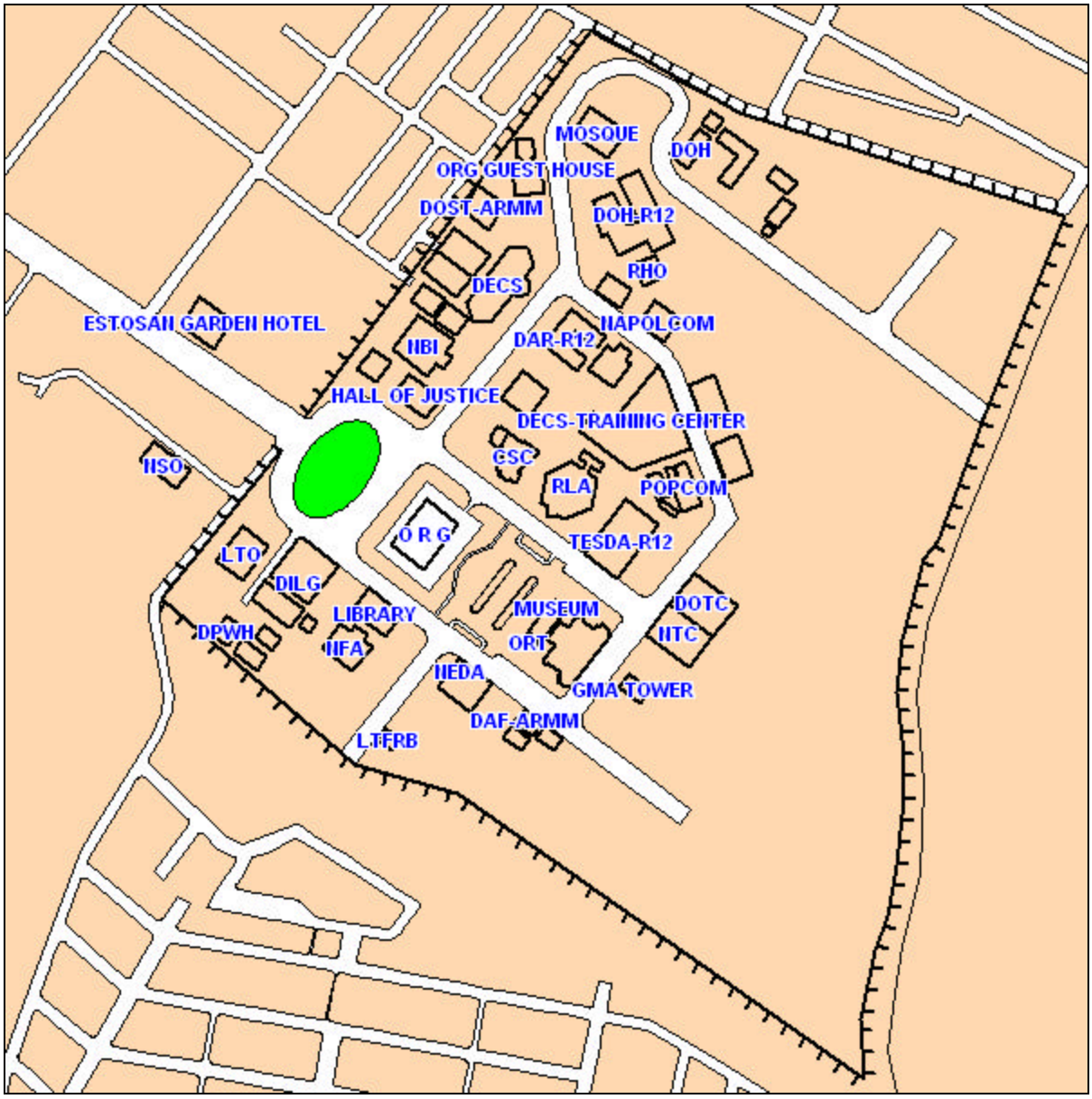
Diagram 2 shows interconnection of the other departments and offices in the ARMM Regional Government. In both cases, it should be noted that, for the offices located in Cotabato City, the primary means of gaining access to the Internet is via the ARMM WAN.

The following (Diagram 3) is the network diagram showing the relationships between the different offices that are connected to the WAN.

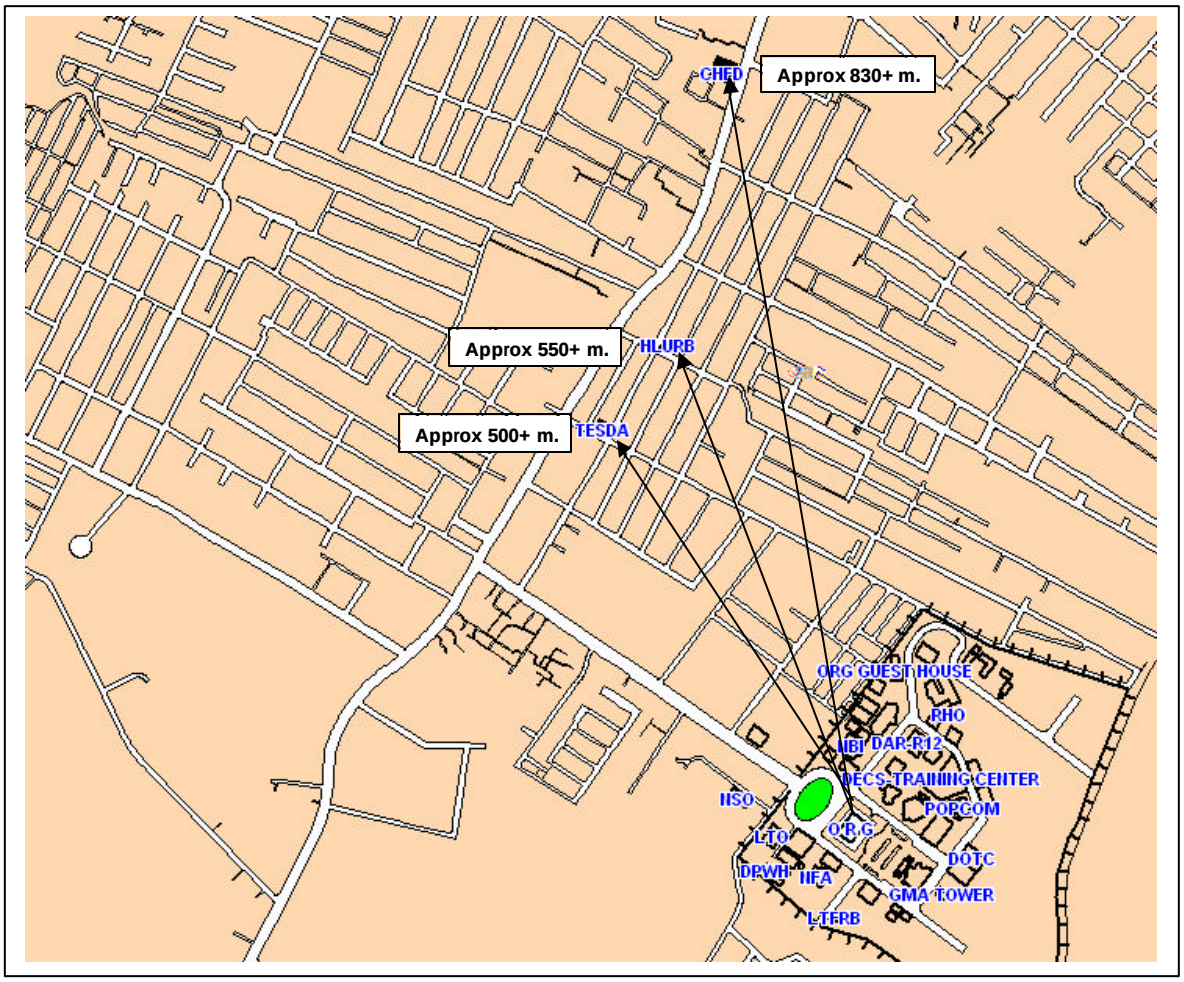
Diagram 3: Network Diagram – ARMM WAN



Map 1: Locations of the different offices within the ARMM compound (taken from digitized maps produced)



MAP 2



Map 2 shows the locations of the three offices that are not within the ARMM compound

6. Lessons Learned from Other Local e-Government Projects

Like any project that requires the leadership to institute changes, a revolutionary project like computerization, interconnectivity, and finally e-Government is expected to meet resistance primarily from those within the bureaucracy and the public in general. It is in this connection that we have provided an extra section in this study that would tell the story of a Local Government Unit, which did not hesitate to implement an ambitious IT program and e-governance for the province, hurdled the difficulties and ultimately triumphed. (Also refer to Exhibit C for the status of E-Governance in the Philippines.)

6.1. The Bulacan Experience

The Provincial Government of Bulacan is one of the more progressive LGUs when it comes to implementation of IT and e-governance.

They were able to implement the following systems:

1. Personnel Management Information System
    - Personnel management
    - General Payroll System
    - Timekeeping System
2. Real Property Tax Information System
    - Assessment Operation
    - Billing System
    - Collection of Real Property Taxes
3. Financial Management Information System
   Accounting
   Budget
   Treasury
4. Environmental Permit and Monitoring System
    - Automated Issuance and Recording of Mining Permit
    - Automated Issuance and Recording of Environmental Compliance Certificates and other Environment-related Information
5. District Hospital Information System
6. Aid Monitoring System
7. Volunteer Worker's Information System
8. Government Vehicle Information System
9. Mayor's Permit and Licensing Information System

- Recording of Business Information
- Assessment of Fees
- Collection of Fees

10. The Bulacan Case Tracking Of Illegal Drugs Online Information System
11. Provincial Cooperative and Enterprise Development Office – Record Keeping Systems

In addition to these systems, their IT group was also involved in the following:

- Production of an interactive CD-ROM on the Province of Bulacan
- Development of Municipal web sites
- Setting up of the Provincial Government of Bulacan Intranet
- Provincial Government of Bulacan web site

All the applications introduced by the Provincial Government of Bulacan are being utilized. Among the keys to the success of the project are:

- Strong political will on the part of the Governor.
- An IT orientation presented by the Governor herself
- Making computer literacy mandatory in all government offices
- Adopting change management measures to obtain the support of the users, beneficiaries and all those who will be affected by the computerization effort.
- Adopting a marketing-oriented approach to 'selling' the idea of computerization to its intended beneficiaries
- Hiring MIS staff from among the best of the colleges in Bulacan and appealing to the idealism of the youth to help the provincial government achieve its objectives.
- Providing performance review and monitoring systems that allow subordinates to rate their supervisors.
- Improvements in the physical work environment
- Strengthening of the rewards system

These efforts resulted in:

- **A Re-energized Bureaucracy.** Government operations are implemented more quickly, resulting in a more responsive and more competitive provincial administration.
- **More Effective and Efficient Service Delivery.** Frontline offices improved the quality of services due to the improvement of systems and operations

in less response time. This means that there were less red tape and waiting time on the part of the users.

- **Improved Information Access.** The Bulacan Information System (BIS) is able to provide access to more reliable, accurate and timely data, such as socio-economic statistics, key economic indicators, tourist facilities, social development data, etc. Through the Provincial Government of Bulacan (PGB) Website, citizens and other interested parties have access to information about the province.
- **Greater Accountability and Transparency.** With computerization, anybody can access the PGB website and know what is happening within the PGB**.** For example, the latest provincial news, deadlines for payment of taxes, announcements, etc. can be accessed anytime of the day, In addition, grievances can be addressed directly to the Governor through the website's "Governor's Corner."
- **Savings of the Provincial Government.** Because of automation, processing of government forms became cost effective and more efficient. In other words, there was a noted reduction in processing time as well as in the number of people needed to process an application. As such, for the year 1999, alone $ 122,000 was saved. This was more than enough to cover the yearly salaries of MIS Department.

Portions of this section were taken from the Presentation made by Governor Josefina M. Dela Cruz of the Province of Bulacan. The complete presentation is attached to this report as Appendix **K**.

6.2. The Butuan City Experience

Butuan City has been implementing IT and computerization projects for over ten years. It has been a testing ground for the development and use of IT and e-governance applications, and yields important lessons for future government projects.

In the past decade the Butuan City government introduced the following systems:

1. Geographic Information
    - Land Use Planning
    - Real Estate Tax Assessment
2. Financial Management Information
    - Payroll
    - Accounting
    - Budget and Cash Management
    - Business Permits

Some of the above applications are being utilized, e.g., Geographic Information Systems used by the City Planning and Development Office. Others, such as the Financial Management Systems, or Geographic Information System for Real Property Tax Assessment system are not being utilized.

Among the lessons learned from the Butuan City Government experience are:

- Needs and requirements of target users need to be sufficiently evaluated and considered in system design.
- Critical factors that should be considered in systems design include: (a) documentation – mapping the physical process(es)to be computerized; (b) analysis – identifying performance indicators to measure desired improvements in process(es); and (c) system design – determining what steps in the process(es) need to be computerized, and preparation of "requirements documentation" (user specifications) and "software requirements specifications" (technical blueprint) to be given to the programmer.
- Capacity development is crucial; training must be comprehensive.
- Computerized applications must be directly useful to the users so that they are "motivated" to maintain and update the systems.

In addition to the above technical considerations, the following realities must also be considered insofar as the Butuan experience is concerned:

- Costs to cover hardware and software upgrade and maintenance must be provided in the LGU's yearly budget
- Fast turnover of trained technical personnel, i.e., once trained, local personnel often seek employment elsewhere in the country or abroad
- Role of leadership: The project had lost its original leader and champion

The above might perhaps be the reason for the Information Technology and Electronic Commerce Council (ITECC/AGILE) to recommend that existing e-LGU programs be augmented by allowing entities like the National Computer Center (NCC) to roll out e-RPTS (Real Property Tax System), e-BPLS (Business Permit and Licensing System) under centralized provincial scheme (e.g. similar to the Bulacan experience).

6.3. Additional Insight from Digital Philippines

Digital Philippines Foundation is a non-stock, non-profit organization composed of Information and Communications Technology (ICT) and ICT-related firms and associations. Digital Philippines aims to be the authoritative private sector point-reference on the ICT industry and its development in the Philippines

Digital Philippines studied the e-Government implementations in other LGUs and concluded that the following are the lessons learned by its member LGUs:

1. The importance of champions.

2. People, not technology, are critical.

3. Adequate resources (hardware, software, training and networking) must be made available.

4. Start with key government frontline services.

5. Make the public aware of available e-Government services.

6.4. Conclusion

It is quite clear from the above examples that the most basic and foremost element present in every success story is a strong political will. As in any successful endeavor, although the first step may be the hardest, sustaining the passion and keeping in track with the goals and objectives would be the most trying and could mean the difference between failure and success.

The lessons learned from the above-mentioned Bulacan and Butuan experiences as well as the insights from Digital Philippines can serve as guide for the ARMM Regional Government as it faces the issues that usually come with change. In addition, and perhaps more importantly, the above experiences can help in designing the technical components and support that will work under the Philippine setting. In sum, the issues that are expected to emerge are the following:

a. Resistance to change - Change management
b. Planned / pending relocation of the ARG complex
c. Maintenance of the data, facilities, systems, and software
d. Management's appreciation of the benefits that can be derived
e. IT manpower attrition

ARMM Computerization: Constraints and Opportunities: During key informant interviews, ARMM agency leaders welcomed the idea of computerization in their work and were supportive of efforts to introduce automation into the processes of government. More particularly, the Offices and Departments that were most amenable to a computerization program were: Office of the Regional Governor, Regional Planning and Development Office, Department of Social Welfare and Development, Department of Public Works and Highways, and the Department of the Interior and Local Government. The Department of Trade and Industry welcomes computerization and is well ahead of other departments in the computerization process. It is most effective to begin a computerization program in supportive institutions that can demonstrate the utility of e-government and serve as a model to other Offices and Departments.

The Department of Education had taken its own initiative in formulating an IT plan. This does not present a problem for the overall ARG IT plan since the proposed IT plan for the ARG was designed to complement the plans of the DepEd.

7. Detailed List of Requirements for Computerization per Office

Table 8 provides the details of the items that will be delivered to each office. The following will allow funding agencies the flexibility of choosing the specific offices that they may wish to fund.

Table 8
Detailed list of items to be delivered to each office for Components 1, 2 (Basic) and Component 3 (Optimum)

Administrative Management Service	**Basic**		**Ideal**	
Item	**Units**	**Item Total**	**Units**	**Item Total**
Intro to Microcomputers and Internet	9	20,700	12	27,600
IT for Executives	1	3,500	1	3,500
MS Access (Intro)	9	23,400	12	31,200
MS Excel	9	31,500	12	42,000
MS Office (XP)	9	144,000	12	192,000
MS Powerpoint	9	31,500	12	42,000
MS Windows XP Professional	6	48,000	6	48,000
MS Word	9	31,500	12	42,000
PC	3	348,000	6	696,000
Total		**682,100**		**1,124,300**

Bureau of Cultural Heritage	**Basic**		**Ideal**	
Item	**Units**	**Item Total**	**Units**	**Item Total**
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	7	16,100	13	29,900
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	16	98,400	32	196,800
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	7	18,200	13	33,800
MS Excel	7	24,500	13	45,500
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	7	112,000	13	208,000
MS Powerpoint	7	24,500	13	45,500
MS Windows XP Professional	1	8,000	1	8,000
MS Word	7	24,500	13	45,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000

Bureau of Cultural Heritage	Basic		Ideal	
Item	**Units**	**Item Total**	**Units**	**Item Total**
PC	6	696,000	12	1,392,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**3,784,120**		**4,766,920**

Bureau of Public Information	Basic		Ideal	
Item	**Units**	**Item Total**	**Units**	**Item Total**
Intro to Microcomputers and Internet	6	13,800	12	27,600
IT for Executives	1	3,500	1	3,500
MS Access (Intro)	6	15,600	12	31,200
MS Excel	6	21,000	12	42,000
MS Office (XP)	6	96,000	12	192,000
MS Powerpoint	6	21,000	12	42,000
MS Windows XP Professional	0	-	0	-
MS Word	6	21,000	12	42,000
PC	6	696,000	12	1,392,000
Total		**887,900**		**1,772,300**

Bureau of Youth Affairs (continuation)	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	7	16,100	14	32,200
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	16	98,400	32	196,800
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	7	18,200	14	36,400
MS Excel	7	24,500	14	49,000
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	7	112,000	14	224,000
MS Powerpoint	7	24,500	14	49,000
MS Windows XP Professional	0	-	0	-
MS Word	7	24,500	14	49,000
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	7	812,000	14	1,624,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**3,892,120**		**5,022,320**

Commission on Audit	Basic		Ideal	
Item	**Units**	**Item Total**	**Units**	**Item Total**
Intro to Microcomputers and Internet	2	4,600	3	6,900
IT for Executives	1	3,500	1	3,500
MS Access (Intro)	2	5,200	3	7,800
MS Excel	2	7,000	3	10,500
MS Office (XP)	2	32,000	3	48,000
MS Powerpoint	2	7,000	3	10,500
MS Windows XP Professional	1	8,000	1	8,000
MS Word	2	7,000	3	10,500
PC	1	116,000	2	232,000
Total		**190,300**		**337,700**

Commission on Higher Education	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	25	57,500	48	110,400
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	64	393,600
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	25	65,000	48	124,800
MS Excel	25	87,500	48	168,000
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	25	400,000	48	768,000
MS Powerpoint	25	87,500	48	168,000
MS Windows XP Professional	2	16,000	2	16,000
MS Word	25	87,500	48	168,000
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	23	2,668,000	46	5,336,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**6,427,720**		**10,014,720**

Cooperative Development Authority	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	9	20,700	13	29,900
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	16	98,400	16	98,400
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	9	23,400	13	33,800
MS Excel	9	31,500	13	45,500
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	9	144,000	13	208,000
MS Powerpoint	9	31,500	13	45,500
MS Windows XP Professional	5	40,000	5	40,000
MS Word	9	31,500	13	45,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	4	464,000	8	928,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**3,646,920**		**4,236,520**

Department of Agrarian Reform	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	21	48,300	36	82,800
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	48	295,200
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	21	54,600	36	93,600
MS Excel	21	73,500	36	126,000
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	21	336,000	36	576,000
MS Powerpoint	21	73,500	36	126,000
MS Windows XP Professional	6	48,000	6	48,000
MS Word	21	73,500	36	126,000
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	15	1,740,000	30	3,480,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**5,406,120**		**7,715,520**

Department of Agriculture and Fisheries	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	28	64,400	44	101,200
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	48	295,200
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	28	72,800	44	114,400
MS Excel	28	98,000	44	154,000
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	28	448,000	44	704,000
MS Powerpoint	28	98,000	44	154,000
MS Windows XP Professional	12	96,000	12	96,000
MS Word	28	98,000	44	154,000
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	16	1,856,000	32	3,712,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**5,789,920**		**8,246,720**

Department of Education	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	29	66,700	40	92,000
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	32	196,800
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	29	75,400	40	104,000
MS Excel	29	101,500	40	140,000
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	29	464,000	40	640,000
MS Powerpoint	29	101,500	40	140,000
MS Windows XP Professional	18	144,000	18	144,000
MS Word	29	101,500	40	140,000
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	11	1,276,000	22	2,552,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**5,289,320**		**6,910,720**

Department of Environment and Natural Resources	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	21	48,300	35	80,500
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	48	295,200
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	21	54,600	35	91,000
MS Excel	21	73,500	35	122,500
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	21	336,000	35	560,000
MS Powerpoint	21	73,500	35	122,500
MS Windows XP Professional	7	56,000	7	56,000
MS Word	21	73,500	35	122,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	14	1,624,000	28	3,248,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**5,298,120**		**7,460,120**

Department of Health	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	18	41,400	34	78,200
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	48	295,200
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	18	46,800	34	88,400
MS Excel	18	63,000	34	119,000
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	18	288,000	34	544,000
MS Powerpoint	18	63,000	34	119,000
MS Windows XP Professional	2	16,000	2	16,000
MS Word	18	63,000	34	119,000
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	16	1,856,000	32	3,712,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**5,395,920**		**7,852,720**

Department of Labor and Employment	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	16	36,800	24	55,200
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	16	98,400	32	196,800
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	16	41,600	24	62,400
MS Excel	16	56,000	24	84,000
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	16	256,000	24	384,000
MS Powerpoint	16	56,000	24	84,000
MS Windows XP Professional	8	64,000	8	64,000
MS Word	16	56,000	24	84,000
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	8	928,000	16	1,856,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**4,354,720**		**5,632,320**

Department of Public Works and Highways	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	24	55,200	44	101,200
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	48	295,200
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	24	62,400	44	114,400
MS Excel	24	84,000	44	154,000
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	24	384,000	44	704,000
MS Powerpoint	24	84,000	44	154,000
MS Windows XP Professional	4	32,000	4	32,000
MS Word	24	84,000	44	154,000
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	20	2,320,000	40	4,640,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**6,064,320**		**9,110,720**

Department of Science and Technology	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	20	46,000	31	71,300
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	32	196,800
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	20	52,000	31	80,600
MS Excel	20	70,000	31	108,500
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	20	320,000	31	496,000
MS Powerpoint	20	70,000	31	108,500
MS Windows XP Professional	9	72,000	9	72,000
MS Word	20	70,000	31	108,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	11	1,276,000	22	2,552,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**4,934,720**		**6,556,120**

Department of Social Welfare and Development	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	27	62,100	47	108,100
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	48	295,200
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	27	70,200	47	122,200
MS Excel	27	94,500	47	164,500
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	27	432,000	47	752,000
MS Powerpoint	27	94,500	47	164,500
MS Windows XP Professional	7	56,000	7	56,000
MS Word	27	94,500	47	164,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	20	2,320,000	40	4,640,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**6,182,520**		**9,228,920**

Department of the Interior and Local Government	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	18	41,400	34	78,200
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	48	295,200
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	18	46,800	34	88,400
MS Excel	18	63,000	34	119,000
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	18	288,000	34	544,000
MS Powerpoint	18	63,000	34	119,000
MS Windows XP Professional	2	16,000	2	16,000
MS Word	18	63,000	34	119,000
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	16	1,856,000	32	3,712,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**5,395,920**		**7,852,720**

Department of Tourism	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	16	36,800	26	59,800
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	32	196,800
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	16	41,600	26	67,600
MS Excel	16	56,000	26	91,000
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	16	256,000	26	416,000
MS Powerpoint	16	56,000	26	91,000
MS Windows XP Professional	6	48,000	6	48,000
MS Word	16	56,000	26	91,000
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	10	1,160,000	20	2,320,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**4,669,120**		**6,143,120**

Department of Trade and Industry	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	20	46,000	33	75,900
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	32	196,800
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	20	52,000	33	85,800
MS Excel	20	70,000	33	115,500
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	20	320,000	33	528,000
MS Powerpoint	20	70,000	33	115,500
MS Windows XP Professional	7	56,000	7	56,000
MS Word	20	70,000	33	115,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	13	1,508,000	26	3,016,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**5,150,720**		**7,066,920**

Department of Transportation and Communication	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	18	41,400	35	80,500
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	48	295,200
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	18	46,800	35	91,000
MS Excel	18	63,000	35	122,500
MS FrontPage 2002	2	20,000	2	20,000
MS Office (XP)	18	288,000	35	560,000
MS PowerPoint	18	63,000	35	122,500
MS Windows XP Professional	1	8,000	1	8,000
MS Word	18	63,000	35	122,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	17	1,972,000	34	3,944,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**5,503,920**		**8,108,120**

Deputy Governor for Indigenous Peoples	Basic		Ideal	
Item	**Units**	**Item Total**	**Units**	**Item Total**
Intro to Microcomputers and Internet	2	4,600	4	9,200
IT for Executives	1	3,500	1	3,500
MS Access (Intro)	2	5,200	4	10,400
MS Excel	2	7,000	4	14,000
MS Office (XP)	2	32,000	4	64,000
MS Powerpoint	2	7,000	4	14,000
MS Windows XP Professional	0	-	0	-
MS Word	2	7,000	4	14,000
PC	2	232,000	4	464,000
Total		**298,300**		**593,100**

Finance, Budget and Management Service	Basic		Ideal	
Item	**Units**	**Item Total**	**Units**	**Item Total**
Intro to Microcomputers and Internet	9	20,700	13	29,900
IT for Executives	1	3,500	1	3,500
MS Access (Intro)	9	23,400	13	33,800
MS Excel	9	31,500	13	45,500
MS Office (XP)	9	144,000	13	208,000
MS Powerpoint	9	31,500	13	45,500
MS Windows XP Professional	5	40,000	5	40,000
MS Word	9	31,500	13	45,500
PC	4	464,000	8	928,000
Total		**790,100**		**1,379,700**

Housing and Land Use Regulatory Board	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	15	34,500	29	66,700
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	48	295,200
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	15	39,000	29	75,400
MS Excel	15	52,500	29	101,500
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	15	240,000	29	464,000
MS Powerpoint	15	52,500	29	101,500
MS Windows XP Professional	1	8,000	1	8,000
MS Word	15	52,500	29	101,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	14	1,624,000	28	3,248,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**5,061,720**		**7,223,720**

National Statistics Office	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	18	41,400	20	46,000
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	16	98,400
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	18	46,800	20	52,000
MS Excel	18	63,000	20	70,000
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	18	288,000	20	320,000
MS Powerpoint	18	63,000	20	70,000
MS Windows XP Professional	16	128,000	16	128,000
MS Word	18	63,000	20	70,000
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	2	232,000	4	464,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**3,883,920**		**4,080,320**

Office of the Regional Governor	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Bandwidth manager	1	280,000	1	280,000
Base Station Unit	6	2,100,000	6	2,100,000
connectivity to ISP (static IP) MRC	12	108,000	12	108,000
connectivity to ISP (static IP) OTC	1	5,000	1	5,000
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Domain name	1	5,000	1	5,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Connection - MRC	12	108,000	12	108,000
Internet Connection - MRC	36	1,080,000	36	1,080,000
Internet Connection - OTC	1	5,000	1	5,000
Internet Connection - OTC	3	210,000	3	210,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	3	6,900	5	11,500
IT for Executives	1	3,500	1	3,500
Java Programming	2	12,000	2	12,000
LAN connections	64	393,600	64	393,600
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	3	7,800	5	13,000
MS Excel	3	10,500	5	17,500
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	3	48,000	5	80,000
MS Powerpoint	3	10,500	5	17,500
MS Windows XP Professional	1	8,000	1	8,000
MS Word	3	10,500	5	17,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	500,000	1	500,000
PC	2	232,000	4	464,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
Server	1	350,000	1	350,000
System - Accounting	1	1,000,000	1	1,000,000
System - Payroll	1	1,000,000	1	1,000,000
System - Personnel Information	1	500,000	1	500,000
System - Procurement	1	1,000,000	1	1,000,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000

Office of the Regional Governor	Basic		Ideal	
Item	**Units**	**Item Total**	**Units**	**Item Total**
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	1,500,000	1	1,500,000
Web site maintenance	12	900,000	12	900,000
Total		**12,535,220**		**12,830,020**

Office of the Regional Governor - Chief of Staff	Basic		Ideal	
Item	**Units**	**Item Total**	**Units**	**Item Total**
Intro to Microcomputers and Internet	4	9,200	6	13,800
IT for Executives	1	3,500	1	3,500
MS Access (Intro)	4	10,400	6	15,600
MS Excel	4	14,000	6	21,000
MS Office (XP)	4	64,000	6	96,000
MS Powerpoint	4	14,000	6	21,000
MS Windows XP Professional	2	16,000	2	16,000
MS Word	4	14,000	6	21,000
PC	2	232,000	4	464,000
Total		**377,100**		**671,900**

Office of the Regional Governor - Manila Liaison Office	Basic		Ideal	
Item	**Units**	**Item Total**	**Units**	**Item Total**
Internet Connection - MRC	12	108,000	12	108,000
Internet Connection - OTC	1	5,000	1	5,000
Intro to Microcomputers and Internet	7	16,100	9	20,700
IT for Executives	1	3,500	1	3,500
LAN connections	16	98,400	16	98,400
MS Access (Intro)	7	18,200	9	23,400
MS Excel	7	24,500	9	31,500
MS Office (XP)	7	112,000	9	144,000
MS Powerpoint	7	24,500	9	31,500
MS Windows XP Professional	5	40,000	5	40,000
MS Word	7	24,500	9	31,500
PC	2	232,000	4	464,000
Total		**706,700**		**1,001,500**

Office of the Regional Treasurer	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	16	36,800	27	62,100
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	32	196,800
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	16	41,600	27	70,200
MS Excel	16	56,000	27	94,500
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	16	256,000	27	432,000
MS Powerpoint	16	56,000	27	94,500
MS Windows XP Professional	5	40,000	5	40,000
MS Word	16	56,000	27	94,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	11	1,276,000	22	2,552,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**4,777,120**		**6,398,520**

Office of the Regional Vice Governor	Basic		Ideal	
Item	**Units**	**Item Total**	**Units**	**Item Total**
Intro to Microcomputers and Internet	4	9,200	5	11,500
IT for Executives	1	3,500	1	3,500
MS Access (Intro)	4	10,400	5	13,000
MS Excel	4	14,000	5	17,500
MS Office (XP)	4	64,000	5	80,000
MS Powerpoint	4	14,000	5	17,500
MS Windows XP Professional	3	24,000	3	24,000
MS Word	4	14,000	5	17,500
PC	1	116,000	2	232,000
Total		**269,100**		**416,500**

Office of the Solicitor General	Basic		Ideal	
Item	**Units**	**Item Total**	**Units**	**Item Total**
Intro to Microcomputers and Internet	2	4,600	4	9,200
IT for Executives	1	3,500	1	3,500
MS Access (Intro)	2	5,200	4	10,400
MS Excel	2	7,000	4	14,000
MS Office (XP)	2	32,000	4	64,000
MS Powerpoint	2	7,000	4	14,000
MS Windows XP Professional	0	-	0	-
MS Word	2	7,000	4	14,000
PC	2	232,000	4	464,000
Total		**298,300**		**593,100**

Regional Board of Investments	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	15	34,500	23	52,900
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	16	98,400	32	196,800
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	15	39,000	23	59,800
MS Excel	15	52,500	23	80,500
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	15	240,000	23	368,000
MS Powerpoint	15	52,500	23	80,500
MS Windows XP Professional	7	56,000	7	56,000
MS Word	15	52,500	23	80,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	8	928,000	16	1,856,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**4,315,320**		**5,592,920**

Regional Planning and Development Office	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	22	50,600	35	80,500
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	32	196,800	32	196,800
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	22	57,200	35	91,000
MS Excel	22	77,000	35	122,500
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	22	352,000	35	560,000
MS Powerpoint	22	77,000	35	122,500
MS Windows XP Professional	9	72,000	9	72,000
MS Word	22	77,000	35	122,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	13	1,508,000	26	3,016,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**5,229,520**		**7,145,720**

Regional Ports Management Authority	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	12	27,600	17	39,100
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	16	98,400	16	98,400
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	12	31,200	17	44,200
MS Excel	12	42,000	17	59,500
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	12	192,000	17	272,000
MS Powerpoint	12	42,000	17	59,500
MS Windows XP Professional	7	56,000	7	56,000
MS Word	12	42,000	17	59,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	5	580,000	10	1,160,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**3,873,120**		**4,610,120**

Technical Education and Skills Development Authority	Basic		Ideal	
Item	Units	Item Total	Units	Item Total
Database Administration	2	40,000	2	40,000
Department laser printer	2	70,000	2	70,000
Dynamic Web Page Development	2	9,720	2	9,720
HTML Web Page Development	2	10,000	2	10,000
Hypertext Preprocessor Programming	2	12,000	2	12,000
Interactive Multimedia Authoring	2	20,000	2	20,000
Internet Server Management	2	20,000	2	20,000
Intro to Microcomputers and Internet	16	36,800	19	43,700
IT for Executives	3	9,000	3	9,000
Java Programming	2	12,000	2	12,000
LAN connections	16	98,400	16	98,400
Linux Operating System	2	8,000	2	8,000
MS Access (Intro)	16	41,600	19	49,400
MS Excel	16	56,000	19	66,500
MS Frontpage 2002	2	20,000	2	20,000
MS Office (XP)	16	256,000	19	304,000
MS Powerpoint	16	56,000	19	66,500
MS Windows XP Professional	13	104,000	13	104,000
MS Word	16	56,000	19	66,500
Network Administration	2	40,000	2	40,000
Network Operations Center	1	350,000	1	350,000
PC	3	348,000	6	696,000
PC - Systems	4	464,000	4	464,000
Perl Programming	2	11,200	2	11,200
Program Logic Formulation	2	10,000	2	10,000
Proxy server	1	75,000	1	75,000
Router	1	75,000	1	75,000
Structured Analysis and Design	2	16,000	2	16,000
Subscriber unit	1	90,000	1	90,000
Visual Basic Programming	2	20,000	2	20,000
WAN maintenance and admin.	2	70,000	2	70,000
System - Accounting	1	75,000	1	75,000
System - Payroll	1	75,000	1	75,000
System - Personnel Information	1	75,000	1	75,000
System - Procurement	1	75,000	1	75,000
Training - Accounting System	3	15,000	3	15,000
Training - Payroll System	3	15,000	3	15,000
Training - Personnel Info System	3	15,000	3	15,000
Training - Procurement System	3	15,000	3	15,000
Web site development	1	350,000	1	350,000
Web site maintenance	12	600,000	12	600,000
Total		**3,814,720**		**4,256,920**

Technical Management Service	Basic		Ideal	
Item	**Units**	**Item Total**	**Units**	**Item Total**
Intro to Microcomputers and Internet	7	16,100	13	29,900
IT for Executives	1	3,500	1	3,500
MS Access (Intro)	7	18,200	13	33,800
MS Excel	7	24,500	13	45,500
MS Office (XP)	7	112,000	13	208,000
MS Powerpoint	7	24,500	13	45,500
MS Windows XP Professional	1	8,000	1	8,000
MS Word	7	24,500	13	45,500
PC	6	696,000	12	1,392,000
Total		**927,300**		**1,811,700**